CRPL-F 245 PART B

FOR OFFICIAL USE

PART B

SOLAR - GEOPHYSICAL DATA

ISSUED

JANUARY 1965

U. S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

CRPL-F 245
PART B

NATIONAL BUREAU OF STANDARDS
CENTRAL RADIO PROPAGATION LABORATORY
BOULDER, COLORADO

Issued
31 Jan. 1965

SOLAR - GEOPHYSICAL DATA

CONTENTS

The descriptive text was republished in November 1964.

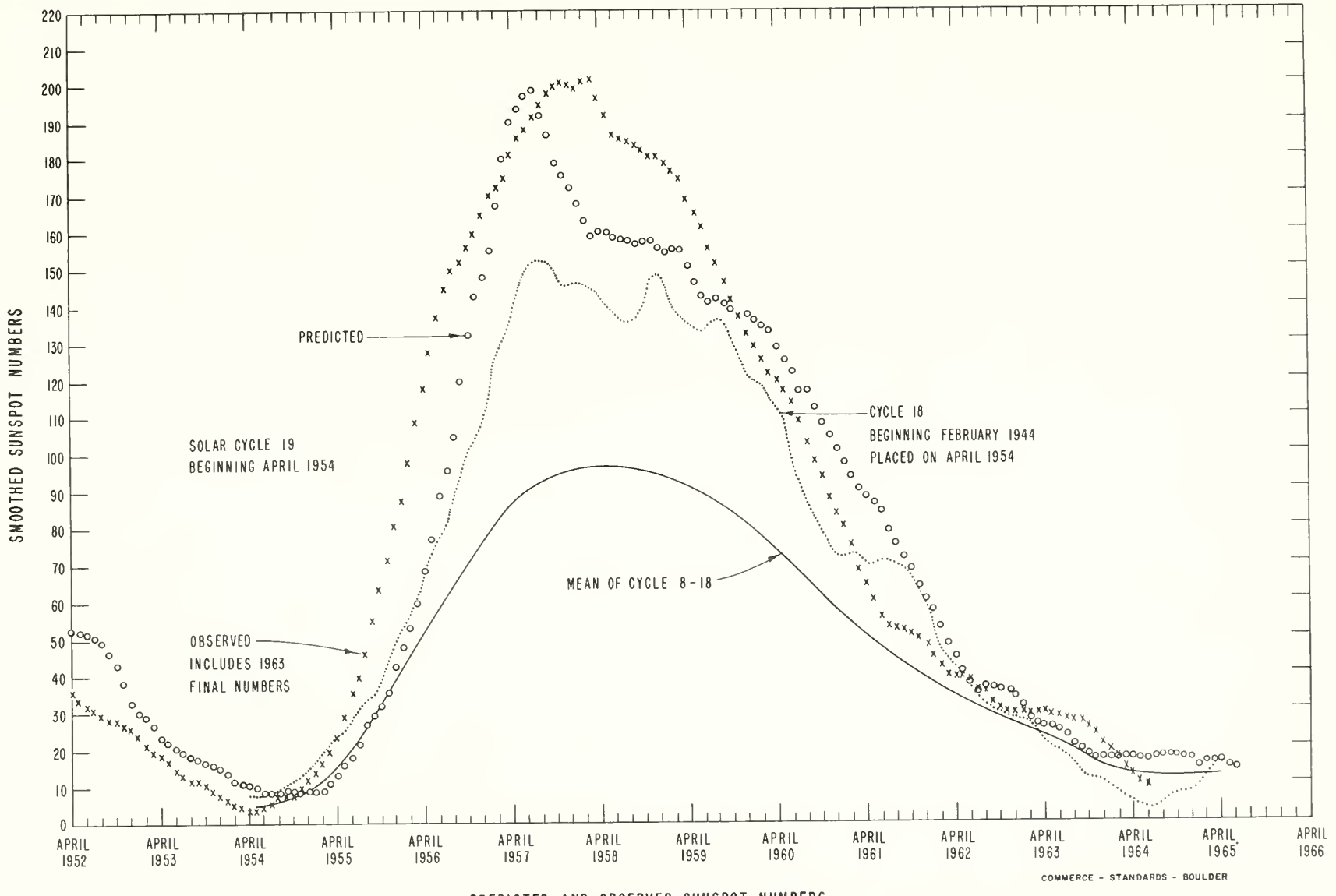
ADDENDUM: On Page 12, please add Observatoire Royal de Belgique, UCCLE, Belgium (UC) to the list of observatories supplying SEA reports.

DAILY SOLAR INDICES

Nov. 1964	American Relative Sunspot Numbers $R_{A'}$
1	12
2	11
3	10
4	3
5	0
6	0
7	3
8	2
9	0
10	0
11	0
12	2
13	1
14	11
15	4
16	20
17	17
18	16
19	16
20	20
21	2
22	2
23	0
24	4
25	0
26	0
27	0
28	4
29	0
30	0
Mean:	5.3

Dec. 1964	Zürich Provisional Relative Sunspot Numbers R_Z	Daily Values Solar Flux at 2800 Mc, Ottawa, Canada Flux S	Flux SA
1	0	76.0	73.9
2	0	76.0	73.8
3	0	76.7	74.4
4	0	78.0	75.7
5	7	77.6	75.3
6	7	76.8	74.6
7	0	76.1	73.8
8	8	77.3	75.0
9	7	77.4	75.0
10	10	78.3	76.0
11	12	79.5	77.0
12	16	76.7	74.3
13	9	77.9	75.5
14	17	77.8	76.1
15	10	78.3	76.5
16	17	79.9	78.2
17	27	79.6	77.8
18	24	79.9	78.1
19	22	81.0	79.1
20	23	79.5	77.6
21	25	78.0	76.2
22	26	77.5	74.9
23	16	76.0	73.5
24	18	75.0	72.5
25	19	75.0	72.4
26	14	74.0	71.5
27	17	76.3	73.8
28	25	77.3	74.7
29	36	77.7	75.1
30	20	76.7	74.1
31	20	78.5	75.9
Mean:	14.6	77.5	75.2

COMMERCE - STANDARDS - BOULDER



PREDICTED AND OBSERVED SUNSPOT NUMBERS

Ic

DAILY VALUES OF SOLAR FLUX AT 2800 Mc/s (OTTAWA - ARO)

FLUX IN WATTS/M^2/CYCLES/SECOND BANDWIDTH (x 10^{-22}) - 2 POLARIZATIONS

OBSERVED VALUES

1964 Day	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec 1964
1	----	72.9	77.5	77.4	68.9	67.7	67.4	66.9	70.0	71.9	74.7	76.0
2	70.6	71.6	75.2	75.4	68.4	68.0	67.0	67.7	69.2	71.5	74.5	76.0
3	73.1	70.9	73.8	76.8	69.8	68.2	67.3	68.0	69.6	71.7	73.9	76.7
4	72.8	71.2	75.0	76.8	70.3	68.2	68.1	67.9	69.8	70.8	73.4	78.0
5	73.7	72.4	72.1	76.0	71.9	67.8	67.6	69.0	69.7	71.6	72.9	77.6
6	75.0	72.7	73.5	75.6	70.9	68.4	67.8	68.2	70.4	72.7	73.9	76.8
7	75.3	72.0	72.9	75.5	70.9	69.6	67.0	67.7	70.7	74.1	72.8	76.1
8	73.2	73.2	73.7	73.5	71.5	69.8	67.9	67.5	70.8	77.0	72.4	77.3
9	73.4	71.8	71.6	75.0	70.9	69.0	67.1	67.9	71.4	73.1	71.7	77.4
10	73.3	72.7	73.2	72.8	70.1	70.3	66.6	68.8	71.8	72.9	71.5	78.3
11	74.6	71.7	75.1	73.9	70.1	70.3	67.6	68.1	72.1	71.8	71.6	79.5
12	76.2	72.8	77.2	72.7	79.4	68.9	66.9	69.8	72.3	70.0	72.2	76.7
13	76.1	73.3	78.2	73.0	68.5	70.2	66.5	74.0	72.0	72.3	72.2	77.9
14	75.6	72.6	78.9	71.6	68.3	70.5	69.2	76.1	71.6	70.6	72.6	77.8
15	74.6	72.7	78.7	71.4	68.0	71.6	69.5	75.4	71.1	70.6	72.2	78.3
16	74.4	73.1	77.0	70.7	70.0	70.6	69.2	73.0	69.5	71.0	71.9	79.9
17	71.5	73.9	77.5	71.8	69.6	71.1	68.6	71.5	68.4	70.9	75.5	79.6
18	73.9	76.0	75.3	71.8	70.4	71.7	68.0	69.6	68.4	72.4	75.0	79.9
19	74.8	75.6	74.2	70.9	68.7	70.1	67.4	70.6	68.8	72.8	74.9	81.0
20	75.9	76.2	74.3	71.4	67.7	70.4	66.6	69.7	68.9	72.6	75.9	79.5
21	74.9	78.5	74.4	71.6	68.0	69.7	66.4	69.2	68.6	70.9	73.7	78.0
22	74.6	79.8	78.4	70.7	67.1	69.5	66.1	69.0	68.7	72.5	73.3	77.5
23	74.7	84.4	77.4	70.3	67.3	67.4	66.4	68.8	68.5	73.0	71.6	76.0
24	74.3	85.2	77.0	71.6	68.0	68.0	66.1	68.4	68.0	73.8	71.1	75.0
25	73.2	84.4	74.1	70.6	67.5	67.7	65.8	67.7	67.8	76.3	71.4	75.0
26	73.8	86.5	74.3	69.6	68.4	67.6	64.8	67.5	69.4	76.4	69.9	74.0
27	73.3	84.9	75.2	69.5	67.7	67.4	65.3	68.2	69.7	75.8	71.5	76.3
28	77.2	84.4	75.7	69.9	69.6	67.3	65.4	67.2	70.2	74.5	70.7	77.3
29	77.5	80.8	75.0	68.8	69.1	67.1	65.9	67.1	70.7	74.3	73.0	77.7
30	74.9		78.2	69.0	68.2	67.2	66.2	68.6	71.4	74.2	73.6	76.7
31	74.3		76.9		67.7		66.2	68.9		75.1		78.5
Mean:	74.4	76.1	75.5	72.5	69.1	69.0	67.0	69.3	70.0	72.9	72.8	77.5

COMMERCE - STANDARDS - BOULDER

DAILY VALUES OF SOLAR FLUX AT 2800 Mc/s (OTTAWA - ARO)

FLUX IN WATTS/M^2/CYCLES/SECOND BANDWIDTH (x 10^{-22}) - 2 POLARIZATIONS

ADJUSTED TO 1 ASTRONOMICAL UNIT

1964 1964

Day	Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
1	----	70.8	76.1	77.3	70.0	69.7	69.7	68.9	71.3	72.0	73.6	73.9
2	68.3	69.5	73.9	75.3	69.5	70.0	69.3	69.7	70.4	71.6	73.3	73.8
3	70.7	68.8	72.5	76.8	71.0	70.2	69.6	70.1	70.8	71.8	72.7	74.4
4	70.4	69.2	73.8	76.9	71.5	70.2	70.4	69.8	71.0	70.8	72.1	75.7
5	71.3	70.4	70.9	76.1	73.2	69.8	69.9	71.0	70.8	71.6	71.6	75.3
6	72.5	70.7	72.4	75.8	72.2	70.5	70.1	70.2	71.5	72.6	72.6	74.6
7	72.8	70.1	71.8	75.7	72.2	71.7	69.3	69.6	71.8	74.0	71.5	73.8
8	70.8	71.2	72.7	73.7	72.9	71.9	70.2	69.4	71.9	76.8	71.1	75.0
9	71.0	69.9	70.6	75.2	72.2	71.1	69.4	69.8	72.4	72.9	70.4	75.0
10	70.9	70.8	72.2	73.1	71.5	72.5	68.9	70.7	72.8	72.7	70.1	76.0
11	72.1	69.8	74.1	74.3	71.5	72.5	69.9	69.9	73.0	71.5	70.2	77.0
12	73.7	70.9	76.3	73.1	70.9	71.0	69.1	70.6	73.2	69.7	70.7	74.3
13	73.6	71.5	77.3	73.4	69.9	72.4	68.7	75.9	72.9	71.9	70.7	75.5
14	73.1	70.8	78.0	72.0	69.8	72.8	71.5	78.0	72.5	70.3	71.1	76.1
15	72.1	70.9	77.8	71.9	69.5	73.9	71.8	77.3	71.9	70.2	70.6	76.5
16	72.0	71.3	76.2	71.2	71.6	72.9	71.6	74.8	70.2	70.5	70.3	78.2
17	69.2	72.1	76.7	72.4	71.2	73.8	70.9	73.3	69.0	70.4	73.7	77.8
18	71.5	74.3	74.6	72.4	72.1	74.1	70.2	71.3	69.0	71.8	73.3	78.1
19	72.4	73.9	73.6	71.5	70.3	72.4	69.6	72.2	69.4	72.2	73.1	79.1
20	73.5	74.5	73.7	72.1	69.3	72.7	68.8	71.4	69.5	71.9	74.0	77.6
21	72.5	76.8	73.9	72.3	69.7	72.0	68.5	70.8	69.1	70.3	72.0	76.2
22	72.3	78.0	77.9	71.5	68.8	71.8	68.2	70.6	69.1	71.8	71.5	74.9
23	72.4	82.6	76.9	71.1	69.0	69.6	68.5	70.3	69.0	72.3	69.9	73.5
24	72.0	83.4	76.5	72.5	69.8	70.2	68.2	69.9	68.4	73.0	69.3	72.5
25	70.9	82.7	73.7	71.4	69.3	69.9	67.9	69.1	68.1	75.4	69.5	72.4
26	71.5	84.8	74.0	70.5	70.2	69.9	66.9	68.9	69.7	75.4	68.1	71.5
27	71.1	83.3	74.9	70.5	69.5	69.7	67.3	69.6	70.0	74.9	69.6	73.8
28	74.9	82.8	75.5	70.9	71.5	69.6	67.4	68.6	70.5	73.5	68.8	74.7
29	75.2	79.3	74.8	69.8	71.0	69.4	67.9	68.5	70.9	73.2	71.0	75.1
30	72.7		78.0	70.0	70.1	69.5	68.3	69.9	71.6	73.2	71.5	74.1
31	72.1		76.7		69.6		68.2	70.2		74.0	.	75.9
Mean:	72.0	74.3	74.8	73.0	70.7	71.3	69.2	71.0	70.7	72.4	71.3	75.2

COMMERCE - STANDARDS - BOULDER

CALCIUM PLAGE AND SUNSPOT REGIONS

DECEMBER 1964

Dec. 1964	LAT.	McMATH PLAGE NUMBER	RETURN OF REGION	CALCIUM PLAGE DATA						SUNSPOT DATA		
				CMP VALUES		HISTORY	AGE (ROTATIONS)	DATE FIRST SEEN (1)	DURATION (DAYS) (1)	CMP VALUES		HISTORY
				AREA	INT					AREA	COUNT	
01.1	N16	7603	New	100	1	b - d	1	11/30	~ 1			
01.5	S25	7598	New	(100)	(1.5)	b - d	1	11/26	~ 1			
03.4	N02	7604 (3)	New	(100)	(1)	b - d	1	11/30	~ 1			
05.3	N05	7602 (3)	New	300	1.5	ℓ - ℓ	1	11/29	12			
08.6	N30	7605	7562	1600	2.5	ℓ - ℓ	2	<12/6	> 9			
10.0	N20	7608 (2)	New	100	2	b - d	1	12/8	1			
10.8	N33	7606	7568	2600	3	ℓ \ ℓ	2	<12/6	>11	10	3	b - d
10.8	S09	7609 (2)	New	(200)	(1.5)	b - d	1	12/8	1			
11.4	S05	7607 (2)	New	(100)	(1)	ℓ - d	1	12/6	1			
11.6	N17	7612 (2)	New	(100)	(1)	b - d	1	12/9	1			
12.5	N08	7610 (2)	New	(200)	(1.5)	b - d	1	12/8	1			
12.5	N22	7614	New	(300)	(1.5)	b - ℓ	1	~12/14	4			
13.0	N20	7611	7581	(700)	(1.5)	ℓ / d	2	<12/8	> 3			
13.3	N29	7615	New	100	1.5	b - d	1	12/14	~ 1			
13.6	S12	7620 (2)	New	(100)	(1)	b - d	1	12/17	1			
15.7	N08	7616	New	300	1	b - d	1	12/14	3			
16.0	N06	7624	New	(300)	(3.5)	b / ℓ	1	≥12/20	> 2			
16.2	N24	7621	New	200	1.5	b - d	1	12/17	~ 2			
16.5	S07	7613	New	2200	2.5	ℓ ∧ ℓ	1	12/9	13	10	3	ℓ - d
18.8	N22	7618	New	600	3	b ⌒ d	1	≤12/14	> 8	10	4	ℓ - d
18.9	S08	7617	7585	800	1.5	ℓ ⌒ d	4	<12/14	> 8			
21.7	S10	7619	New	600	2.5	ℓ / ℓ	1	12/15	12	20	6	ℓ - d
24.6	S10	7623	New	(500)	(2.5)	ℓ — ℓ	1	12/18	≥11			
25.0	N34	7622	New	(3000)	(3)	ℓ \ ℓ	1	12/17	≥12	210	4	ℓ - ℓ
26.3	S32	7628a (4)	New	(100)	(1.5)	b - d	1	12/28	~ 1			
29.4	S09	7629a (4)	New	200	1	b - d	1	12/28	~ 1			
30.2	N02	7625 (3)	New	200	2.5	b - d	1	≤12/27	> 5	10	3	b - d
31.0	N22	7626	New	1300	3.5	b - ℓ	1	≤12/27	≥11	140	24	b - ℓ
31.4	S03	7627	New	200	1	b \ d	1	≤12/27	> 5	40	1	b - d

COMMERCE - STANDARDS - BOULDER

(1) Due to long intervals of bad weather conditions no calcium plage data were secured at the McMath-Hulbert Observatory on December 1-5, 7, 11-13, 19, 22-26, 29, 30, 1964.

(2) These very small and ephemeral plages last for only one day.

(3) Plage 7602 is new, in the same position as the ephemeral plage 7561 of the previous rotation; 7604 is in the same position as 7565 and 7625 is in the same position as ephemeral 7604.

(4) Due to an oversight, the numbers 7628 and 7629 were used twice to designate differen plages - these have been changed to 7628a and 7628b and 7629 a and b.

ERRATA: In CRPL-F244 Part B, page IIa, on Nov. 02.1 in calcium plage history column should be "b - ℓ" not "d - ℓ"; and on Nov. 15.9 the latitude of McMath Plage Number 7581 should be N28, not N18.

DECEMBER 1964

DEC. 1964	TIME MEAS. UT	LAT.	MER DIST	TYPE	DEC. 1964	TIME MEAS UT	LAT	MER DIST.	TYPE
1	No Obs				13	1900	N23	W16	αp *
							S07	E31	αp
2 - 3	No Spots								
					14	1745	S07	E18	βp
4	1745	N36	E52	αp			N23	E55	αp *
		N30	E72	αp					
					15	1735	S07	E03	βp
5	1835	N30	E60	αf			N22	E44	αf *
							S09	E78	αp
6 - 7	No Spots								
					16	1810	N23	E29	β *
8	1705	N29	E25	βf			S08	E65	β
9	No Obs				17 - 20	No Obs			
10	1755	N30	W05	αp *	21	1810	N06	W80	αf
		S07	E72	γ			S11	W06	αp
							N36	E36	βp *
11	1950	N25	W14	αp *					
		N30	W09	αf *	22	1715	S11	W17	βp
		S07	E56	βp			N36	E24	βp *
12	1650	S07	E45	αp	23 - 31	No obs			

COMMERCE - STANDARDS - BOULDER

* New Cycle Designation

PROVISIONAL CORONAL LINE EMISSION INDICES

DECEMBER 1964

CMP Dec 1964	North East Quadrant (observed 7 days earlier)				South East Quadrant (observed 7 days earlier)				South West Quadrant (observed 7 days later)				North West Quadrant (observed 7 days later)			
	G_6	G_1	R_6	R_1	G_6	G_1	R_6	R_1	G_6	G_1	R_6	R_1	G_6	G_1	R_6	R_1
1	x	x	x	x	x	x	x	x	0	0	11	12	0	0	12	16
2	8	12	24	27	3	4	24	27	x	x	x	x	x	x	x	x
3	10	12	17	20	3	4	12	15	0	0	13	16	1	6	16	24
4	x	x	x	x	x	x	x	x	2	3	12	14	10	15	13	19
5	x	x	x	x	x	x	x	x	3	4	19	22	11	16	21	26
6	16	30	20	23	2	3	18	21	3	6	14	20	16	21	16	26
7	27	57	21	27	5	6	11	14	2	3	18	20	22	30	22	28
8	35	75	20	33	4	5	14	16	x	x	x	x	x	x	x	x
9	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
10	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
11	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
12	17	36	23	30	6	8	19	22	x	x	x	x	x	x	x	x
13	12	27	12	18	3	4	12	14	x	x	x	x	x	x	x	x
14	8	15	14	16	7	10	18	23	x	x	x	x	x	x	x	x
15	34	55	15	19	34	46	23	30	x	x	x	x	x	x	x	x
16	x	x	x	x	x	x	x	x	22	40	22	30	10	30	28	40
17	3	11	28	33	5	22	26	34	x	x	x	x	x	x	x	x
18	5	6	15	17	11	30	16	21	x	x	x	x	x	x	x	x
19	6	9	18	21	10	21	16	20	10	16	15	16	6	8	23	31
20	5	6	14	18	6	9	13	17	x	x	x	x	x	x	x	x
21	6	8	21	26	5	14	13	16	x	x	x	x	x	x	x	x
22	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
23	x	x	x	x	x	x	x	x	0	0	x	x	0	0	x	x
24	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
25	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
26	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
27	x	x	x	x	x	x	x	x	3	4	16	20	7	12	13	16
28	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
29	x	x	x	x	x	x	x	x	2	3	22	30	21	40	20	25
30	4	5	23	26	1	3	22	30	x	x	x	x	x	x	x	x
31	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

x = no observations * = yellow line emission a = index computed from low weight data

COMMERCE - STANDARDS - BOULDER

SOLAR FLARES

DECEMBER 1964

OBSERVATORY	DATE DEC 1964	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX WIDTH Ha	MAX. INT. %	REMARKS
	01	0000	0745	NO FLARE	PATROL											
CAPS	01	1055 E	1111 D		N23	W66	7592		1-	2	1105	.30	.70		165	DG
	01	1215	1340	NO FLARE	PATROL											
	01	1345	1355	NO FLARE	PATROL											
SACP	01	1426	1447	1440	N26	W66	7592		1-	C		.41	.74		19	
	01	1550	1605	NO FLARE	PATROL											
	01	2110	2155	NO FLARE	PATROL											
	01	2210	2400	NO FLARE	PATROL											
	02	0000	0750	NO FLARE	PATROL											
	02	1510	1525	NO FLARE	PATROL											
	02	1650	2400	NO FLARE	PATROL											
	03	0000	0730	NO FLARE	PATROL											
	03	0920	1025	NO FLARE	PATROL											
	03	1030	1045	NO FLARE	PATROL											
	03	1055	1110	NO FLARE	PATROL											
	03	1330	2400	NO FLARE	PATROL											
	04	0000	0715	NO FLARE	PATROL											
CAPS	04	0827	0856		N38	E80	7606	29	2	3	0838	6.00			185	G
ARCE	04	0935 E	0955 D		N33	E80	7606	20 D	2	2	0945	2.13	6.82			O
CAPS	04	0958	1015 D		N32	E80	7606		1-	3	1008	.80			151	G
ARCE	04	1000 E	□		N34	E80	7606		1	2	1000	.72	2.31			O
	04	1200	1255	NO FLARE	PATROL											
	04	1320	1330	NO FLARE	PATROL											
	04	1335	1625	NO FLARE	PATROL											
	05	0040	0710	NO FLARE	PATROL											
LOCK	05	1740	1800	1747	N30	E33	7606		1-	C	1747	.20	.20		10	
LOCK	05	2003	2024	2010	N24	W26			1-	C	2010	.20	.20		10	
LOCK	05	2054	2107	2059	N48	E12			1-	C	2059	.20	.30		10	
LOCK	05	2130	2149	2140	N32	E30	7606		1-	C	2140	.10	.10		10	
	06	0005	0705	NO FLARE	PATROL											
	06	0955	1015	NO FLARE	PATROL											
	06	1030	1400	NO FLARE	PATROL											
	07	0020	0745	NO FLARE	PATROL											
CATA	07	1008 E	1025 D		N32	E45	7606	17 D	1		1015					
CAPS	07	1017 E	1038		N34	E46	7606	21 D	1	3	1027	1.80	2.90		176	FG
CAPS	07	1019 E	1022		N22	E75	7611		1-	3	1020	.30			150	G
	07	1725	1750	NO FLARE	PATROL											
	07	1810	2400	NO FLARE	PATROL											
	08	0000	0800	NO FLARE	PATROL											
	08	1235	1250	NO FLARE	PATROL											
	08	1255	1425	NO FLARE	PATROL											
LOCK	08	1828	1842	1835	N47	W28			1-	C	1835	.30	.40		10	
	09	0000	0815	NO FLARE	PATROL											

SOLAR FLARES

DECEMBER 1964

OBSERVATORY	DATE DEC 1964	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER DIST	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq Deg	CORR AREA Sq Deg	MAX WIDTH Hα	MAX INT %	REMARKS
	09	1310	1350	NO FLARE	PATROL											
ARCE	09	1510 E	1514 D		S05	E90	7613	4 D	1	2	1514	.70	3.98			O
LOCK	09	1742	1830	1752	S06	E80	7613		1-	C	1752	.50	1.50		10	HJ
LOCK	09	1940	2030	2000	S06	E90	7613	50	1	C	2000	.50	2.50		10	HJ
LOCK	09	2115	2210	2135	S06	E80	7613	55	1	C	2135	.70	2.10		10	J
LOCK	09	2214	2222	2217	S07	E90	7613	8	1	C	2217	.50	2.50		10	J
LOCK	09	2252	2310	2257	S06	E80	7613		1-	C	2257	.30	.30		10	
	10	0025	0740	NO FLARE	PATROL											
ARCE	10	0945 E	1000 D		S06	E79	7613		1-	2	1000	.33	1.01			O
UCCL	10	1033	1034		S27	W80			1-	3						D
CAPS	10	1120	1138		S03	E78	7613	18	1	3	1127	1.80			166	
CAPS	10	1152 E	1203		S03	E78	7613		1-	3	1158	1.50			150	
	10	1205	1255	NO FLARE	PATROL											
CAPS	10	1227 E	1234		S03	E75	7613		1-	3	1228	.30			142	
	10	1305	1400	NO FLARE	PATROL											
CAPS	10	1353	1400		N30	E05	7606		1-	3	1357	.20	.20		148	DGH
	10	1410	1415	NO FLARE	PATROL											
LOCK	10	2030	2245	2125	N32	W29	7605		1-	C	2125	1.00	1.10		10	L
SACP	10	2332	2355 D	2344	N38	W60			1-	C		.67	1.13		16	
	10	2355	2400	NO FLARE	PATROL											
	11	0000	0715	NO FLARE	PATROL											
CATA	11	0925 E	0955 D		S11	E69	7613		1-		0932					
CATA	11	1110 E	1147 D		S08	E69	7613		1-		1128					
	11	1200	1405	NO FLARE	PATROL											
	11	1735	1815	NO FLARE	PATROL											
	11	2355	2400	NO FLARE	PATROL											
	12	0000	0755	NO FLARE	PATROL											
CATA	12	0850 E	1210 D		S08	E65	7613	200 D	1		0855					
	12	1320	1410	NO FLARE	PATROL											
SACP	12	1425	1430	1427	S05	E43	7613		1-	C		.74	.89		17	
	13	0010	0800	NO FLARE	PATROL											
CAPS	13	0915 E	0926		N27	W32	7606		1-	3	0919	.20	.30		149	DG
CAPS	13	1224	1247		N22	W12	7614		1-	3	1238	1.00	1.10		154	
SACP	13	1850	1907	1856	S08	E27	7613		1-	C		.68	.74		18	
	13	2350	2400	NO FLARE	PATROL											
	14	0000	0750	NO FLARE	PATROL											
	14	1200	1325	NO FLARE	PATROL											
	14	1340	1345	NO FLARE	PATROL											
LOCK	14	1835	1859	1848	N33	W52	7606		1-	C	1848	.30	.40		10	L
	15	0020	0830	NO FLARE	PATROL											
	15	0930	1345	NO FLARE	PATROL											
LOCK	15	2125	2230	2150	S51	E48			1-	C	2150	.20	.40		10	
	16	0005	1355	NO FLARE	PATROL											
	16	1915	2055	NO FLARE	PATROL											

COMMERCE - STANDARDS - BOULDER

SOLAR FLARES

DECEMBER 1964

OBSERVATORY	DATE DEC 1964	OBSERVED UNIVERSAL TIME START	END	MAX PHASE	LOCATION APPROX LAT.	MER DIST	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq Deg	CORR. AREA Sq. Deg	MAX. WIDTH Hα	MAX INT %	REMARKS
	16	2100	2115	NO FLARE	PATROL											
	16	2225	2400	NO FLARE	PATROL											
	17	0000	0920	NO FLARE	PATROL											
	17	1030	1450	NO FLARE	PATROL											
CAPS	17	1310 E	1421 D		S08	E56	7619		1-	1	1330	2.00	3.50		157	
	17	1500	1505	NO FLARE	PATROL											
MCMA	17	1732	1740	1735	S09	E54	7619		1-	1 C	1735	.40	.70			D
LOCK	17	2315	2340 D	2326	N23	E12	7618		1-	C	2326	.60	.60		20	
	17	2340	2400	NO FLARE	PATROL											
	18	0000	1330	NO FLARE	PATROL											
	18	1900	2400	NO FLARE	PATROL											
	19	0000	0500	NO FLARE	PATROL											
	19	0915	1505	NO FLARE	PATROL											
	19	1520	1600	NO FLARE	PATROL											
	19	1620	1635	NO FLARE	PATROL											
	19	1650	1705	NO FLARE	PATROL											
	19	1805	1810	NO FLARE	PATROL											
	19	1820	1845	NO FLARE	PATROL											
	19	1905	1915	NO FLARE	PATROL											
	19	1930	2050	NO FLARE	PATROL											
	19	2100	2110	NO FLARE	PATROL											
	19	2220	2400	NO FLARE	PATROL											
	20	0000	0815	NO FLARE	PATROL											
	20	1015	1425	NO FLARE	PATROL											
	20	1750	1850	NO FLARE	PATROL											
	20	2350	2400	NO FLARE	PATROL											
	21	0000	0845	NO FLARE	PATROL											
	21	0915	0945	NO FLARE	PATROL											
CATA	21	0945 E	1140 D		S09	E03	7619	115 D	1		0950					
	21	1000	1045	NO FLARE	PATROL											
	21	1210	1355	NO FLARE	PATROL											
OTTA	21	1724	1739	1728	N35	E36	7622		1-	C	1728	.22	.29			F
	22	0000	0745	NO FLARE	PATROL											
	22	1500	2400	NO FLARE	PATROL											
	23	0000	0805	NO FLARE	PATROL											
	23	0815	0825	NO FLARE	PATROL											
	23	1025	1040	NO FLARE	PATROL											
	23	1210	1250	NO FLARE	PATROL											
	23	1305	1350	NO FLARE	PATROL											
	23	2045	2120	NO FLARE	PATROL											
	23	2350	2400	NO FLARE	PATROL											
	24	0000	0815	NO FLARE	PATROL											
	24	0820	0825	NO FLARE	PATROL											

SOLAR FLARES

DECEMBER 1964

OBSERVATORY	DATE DEC 1964	OBSERVED UNIVERSAL TIME START	END	MAX PHASE	LOCATION APPROX LAT.	MER DIST	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq Deg	MAX. WIDTH Ha	MAX INT %	REMARKS
	24	0845	0945	NO FLARE	PATROL											
	24	1000	1145	NO FLARE	PATROL											
UCCL	24	1200	1203		S12	W43	7619		1-	4						D
	24	1205	1445	NO FLARE	PATROL											
	24	2020	2220	NO FLARE	PATROL											
	25	0005	0720	NO FLARE	PATROL											
	25	0810	0900	NO FLARE	PATROL											
	25	1130	1155	NO FLARE	PATROL											
	25	1240	1850	NO FLARE	PATROL											
LOCK	25	2200	2230	2215	N30	E08	7622		1-	C	2215	.20	.20		10	
	26	0000	1145	NO FLARE	PATROL											
	26	1200	1415	NO FLARE	PATROL											
	26	2245	2315	NO FLARE	PATROL											
	26	2325	2400	NO FLARE	PATROL											
	27	0000	0830	NO FLARE	PATROL											
UCCL	27	1041	1044		N01	E60	7627		1-	3						E
UCCL	27	1113	1116		N01	E60	7627		1-	3						D
UCCL	27	1120	1122		N01	E60	7627		1-	3						D
UCCL	27	1128	1141		N01	E60	7627		1-	3						D
	27	1200	1420	NO FLARE	PATROL											
	27	2020	2200	NO FLARE	PATROL											
	27	2305	2400	NO FLARE	PATROL											
	28	0000	0815	NO FLARE	PATROL											
UCCL	28	1254	1326	1305	S01	E42	7627	32	1	3						E
SACP	28	1705	1711	1706	N23	E32	7626		1-	C		.80	.90		17	
SACP				1708												
	28	1920	2400	NO FLARE	PATROL											
	29	0000	0800	NO FLARE	PATROL											
BUCA	29	0850	0918 D		N34	W67	7622		1-	2						
BUCA	29	0915	0918 D		N03	E24	7627		1-	2						
	29	1550	1555	NO FLARE	PATROL											
	29	1825	1830	NO FLARE	PATROL											
	29	2030	2400	NO FLARE	PATROL											
	30	0000	0820	NO FLARE	PATROL											
CAPS	30	0846 E	1050 D		N34	W80	7622	124 D	1	1	0902	3.00			157	
CATA	30	0922 E	1148 D		N20	E14	7626	146 D	1+		0923					
HTPR	30	0925	0940	0928	N23	E16	7626		1-		0928	.30	.40			D
CAPS	30	1027 E	1050 D		N22	E10	7626	23 D	1	1	1040	2.00	2.20		150	
HTPR	30	1032	1040	1034	N22	E12	7626		1-		1034	.60	.70			E
HTPR	30	1143	1148	1146	N22	E10	7626		1-		1146	.60	.70			E
CAPS	30	1318	1326		N34	W80	7622		1-	3	1322	1.00			145	
	30	1345	1355	NO FLARE	PATROL											
	30	1430	1440	NO FLARE	PATROL											
	30	1550	1555	NO FLARE	PATROL											
SACP	30	1609	1620	1615	S12	W87	7623		1-	C		.27			17	

SOLAR FLARES

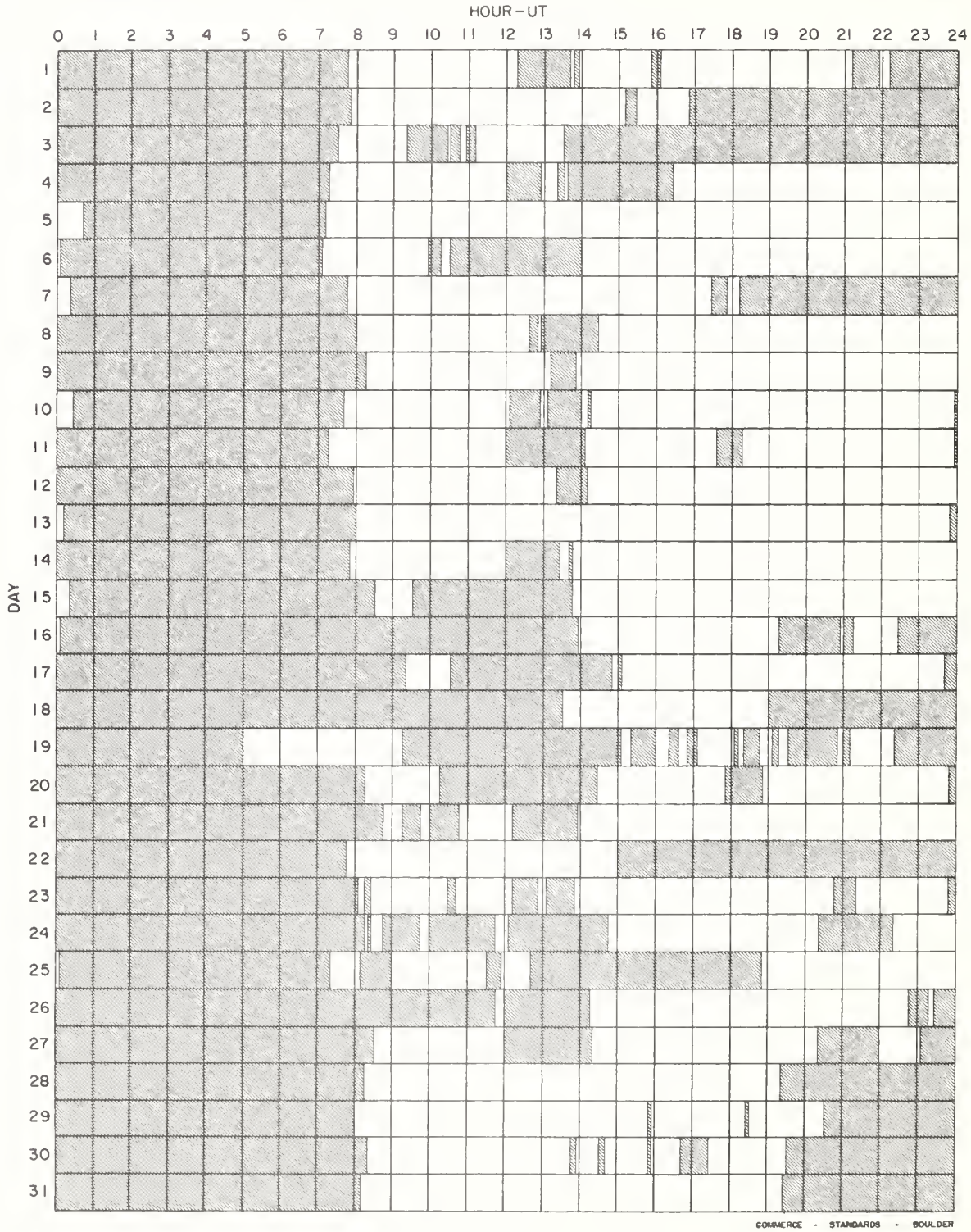
DECEMBER 1964

OBSERVATORY	DATE DEC 1964	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ho	MAX. INT %	REMARKS
	30	1640	1725	NO FLARE	PATROL											
	30	1930	2400	NO FLARE	PATROL											
	31	0000	0810	NO FLARE	PATROL											
CAPS	31	0826 E	1144		N20	W00	7626	198 D	1	3	0825	4.00	4.30		171	K
CATA	31	0900 E	1020 D		N21	W03	7626	80 D	1		0910					
MCMA	31	1723	1740	1728	N23	W07	7626		1-	2 C	1728	1.00	1.10			E
SACP	31	1723	1740	1729	N23	W08	7626		1-	C		.54	.56		21	
LOCK	31	1723	1740	1727	N23	W08	7626		1-	C	1727	.60	.60		20	
	31	1925	2400	NO FLARE	PATROL											

COMMERCE - STANDARDS - BOULDER

INTERVALS OF NO FLARE PATROL OBSERVATIONS
PROVISIONAL

DECEMBER 1964



Observatories included:

Arcetri	Haute-Provence	McMath-Hulbert	Sacramento Peak
Bucharest	Istanbul	Ondrejov	Tortosa
Catania	Lockheed	Ottawa	Uccle

SOLAR FLARES

SEPTEMBER 1964

OBSERVATORY	DATE SEPT 1964	OBSERVED UNIVERSAL TIME START	END	MAX. PHASE	LOCATION APPROX. LAT.	MER. DIST.	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX. WIDTH Ha	MAX. INT. %	REMARKS
	01	2120	2135	NO FLARE	PATROL											
UCCL	02	1034 E	1037		N19	E60	7468		1-	3						D
CLMX	02	1544	1705		N30	E90	7469		1-	C	1626	.40	2.00			B
	05	0400	0415	NO FLARE	PATROL											
	05	0420	0455	NO FLARE	PATROL											
	05	0600	0640	NO FLARE	PATROL											
	06	0355	0400	NO FLARE	PATROL											
	06	0420	0430	NO FLARE	PATROL											
	06	0440	0500	NO FLARE	PATROL											
	09	0410	0415	NO FLARE	PATROL											
	09	0440	0450	NO FLARE	PATROL											
	09	0515	0525	NO FLARE	PATROL											
UCCL	09	1452	1459	1453	N37	W45	7470	7	1	4	1453	2.00	3.00			E
UCCL	10	1502	1610		N40	W52	7470	68	1	4		2.00	3.00			EH
TACH	11	0417	0425	0420	N37	W65	7470		1-	C	0420	.50	1.10	3.60	75	D
KANZ	11	0620 E	0735	0634	N39	W61	7470	75 D	2		0634		12.00	2.30		
UCCL	11	0836	0841		N02	E45	7478		1-	4						D
UCCL	11	0839	0841		N40	W68	7470		1-	4						F
UCCL	11	0936	0952		N40	W68	7470		1-	3						F
UCCL	11	1103	1121		N40	W65	7470		1-	3						E
UCCL	11	1354	1410		N40	W68	7470		1-	4						E
HALE	11	2209	2235	2211	N36	W73	7470		1-	2	2211	.60	1.30			G
HALE	11	2303	2329	2312	N36	W73	7470		1-	2	2312	.60	1.30			G
HALE	12	0217 E	0247	0224	N36	W73	7470		1-	2	0224	.50	1.10			G
HALE	12	0323 E	0330 D	0328	N37	W73	7470		1-	2	0328	.40	.90			G
KANZ	12	0801 E	0813		N42	W78	7470	12 D	1				4.00			
BUCA	12	0804 E	0820 D	U	N39	W75	7470		1-	2			2.00			
KANZ	12	0840 E	□		N06	W29	7480		1-							
KANZ	12	0912	0930 D		N41	W73	7470		1-							
KANZ	12	1234	1251		N07	W32	7480		1-							
HALE	12	1830 E	1859	1843	N37	W85	7470		1-	2	1843	.40	1.40			G
HALE	12	1913	1935	1925	N05	W37	7480		1-	2	1925	.20	.20			G
HALE	12	1926	1938	1931	N37	W85	7470		1-	2	1931	.50	1.70			G
HALE	12	2004	2028	2015	N05	W38	7480		1-	2	2015	.30	.30			G
HALE	12	2021	2029	2023	N37	W85	7470		1-	2	2023	.20	.70			G
HALE	12	2058	2111	2102	N37	W85	7470		1-	2	2102	.20	.70			G
HALE	12	2221	2242	2225	N05	W40	7480		1-	2	2225	.20	.20			G
	13	0250	0300	NO FLARE	PATROL											
UCCL	14	0840	0849		N29	W34	7474		1-	3						D
UCCL	14	1056 E	1100		N07	W60	7480		1-	2						D
	18	0105	0235	NO FLARE	PATROL											

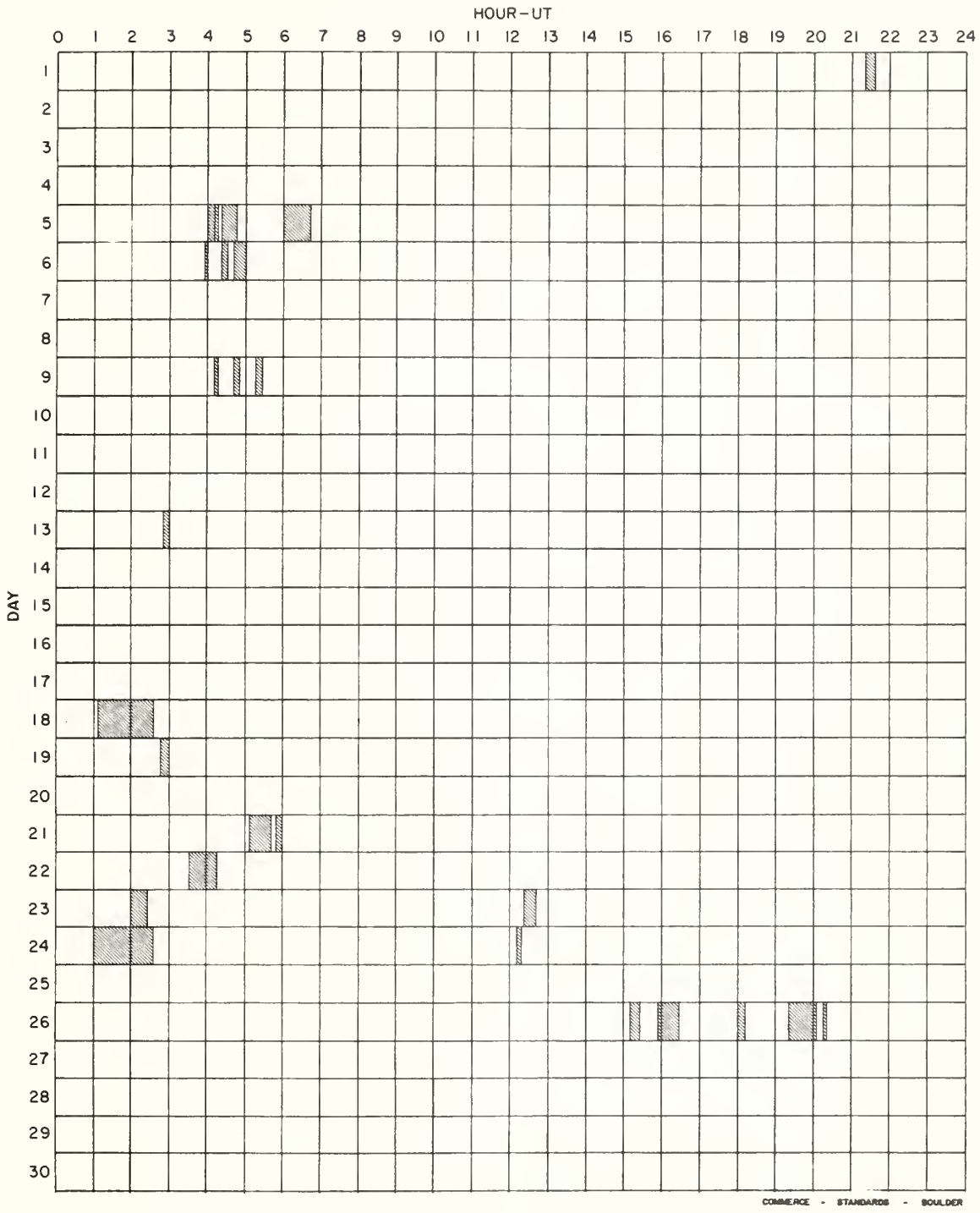
SOLAR FLARES

SEPTEMBER 1964

OBSERVATORY	DATE SEPT 1964	OBSERVED UNIVERSAL TIME START	END	MAX PHASE	LOCATION APPROX. LAT.	MER. DIST	McMATH PLAGE REGION	DURATION — MINUTES	IMPORTANCE	OBS. COND.	MEASUREMENTS TIME — U T	MEAS. AREA Sq. Deg.	CORR. AREA Sq. Deg.	MAX WIDTH Ho	MAX. INT. %	REMARKS
	19	0245	0300	NO FLARE	PATROL											
	21	0505	0540	NO FLARE	PATROL											
	21	0550	0600	NO FLARE	PATROL											
UCCL	21	1427	1432	1429	N04	E38	7485		1-	4						DH
	22	0330	0415	NO FLARE	PATROL											
UCCL	22	0918	0954		N09	W03	7487		1-	3						E
UCCL	22	1044	1048		N03	E27	7485		1-	3						D
	23	0200	0225	NO FLARE	PATROL											
	23	1220	1240	NO FLARE	PATROL											
	24	0100	0235	NO FLARE	PATROL											
	24	1210	1215	NO FLARE	PATROL											
	26	1510	1525	NO FLARE	PATROL											
	26	1555	1625	NO FLARE	PATROL											
	26	1800	1810	NO FLARE	PATROL											
	26	1920	2005	NO FLARE	PATROL											
	26	2015	2020	NO FLARE	PATROL											
UCCL	27	1000	1004	1001	N26	E20	7499		1-	4						D
UCCL	27	1042	1046	1043	N26	E20	7499		1-	3						D
HALE	30	2122	2135 D	2126	N22	W56	7504		1-	3	2126	.30	.40			
HALE	30	2245 E	2315 D	2251	N22	W56	7504		1-	3	2251	.30	.40			

INTERVALS OF NO FLARE PATROL OBSERVATIONS

SEPTEMBER 1964



Observatories Included:

Abastumani	Capri-S (Swedish)	Huancayo	Locarno	Ottawa	Wroclaw
Arcetri	Catania	Ikomasan	Lockheed	Sacramento Peak	Zürich
Arosa	Climax	Istanboul	Lvov	Siberian Izmir	
Bakou	Dunsink	Kanzelhohe	Manila	Sydney	
Bucharest	Haleakala	Kharkov	McMath-Hulbert	Tachkent	
Capetown	Haute-Provence	Kiev	Mitaka	Uccle	
Capri-F (German)	Herstmonceux	Kodaikanal	Ondrejov	Vorochilov	

SOLAR RADIATION MONITORING SATELLITE

AVERAGE X-RAY FLUX

NRL

SEPTEMBER–OCTOBER, 1964

Date	Times of Observation	Average X-ray Flux 44-60 A	8-12 A	0-8 A
September 1	0703 0709 1558 1613 1746 1758	2.7×10^{-2}	$< 1.5 \times 10^{-4}$	$< 1.2 \times 10^{-4}$
September 2	0713 0718 1422 1434 1609 1623 1754 1806	$> 2.8 \times 10^{-2}$	$< 1.0 \times 10^{-4}$	$< 1.1 \times 10^{-4}$
September 3	0722 0727 0504 0512 1431 1444 1616 1631	2.9×10^{-2}	$< 1.7 \times 10^{-4}$	$< 1.2 \times 10^{-4}$
September 4	0547 0555 0730 0738	2.7×10^{-2}	$< 4.5 \times 10^{-4}$	$< 3 \times 10^{-4}$
September 11	1213 1224 1358 1414 1546 1557	3.3×10^{-2}	$< 7 \times 10^{-4}$	$< 4 \times 10^{-4}$
September 12	1222 1233 1408 1423 1555 1606	$> 3.6 \times 10^{-2}$	6.6×10^{-4}	$< 1.4 \times 10^{-4}$
September 13	1231 1245 1417 1432 1605 1613	$> 3.1 \times 10^{-2}$	7.0×10^{-4}	$< 1.0 \times 10^{-4}$
September 14	1240 1253 1426 1441	3.4×10^{-2}	$< 2.0 \times 10^{-4}$	$< 1.8 \times 10^{-4}$
September 22	1022 1035 1207 1223 1355 1406	2.2×10^{-2}	$< 2.2 \times 10^{-4}$	$< 1.5 \times 10^{-4}$
September 23	1031 1045 1220 1232 1406 1413	2.6×10^{-2}	$< 1.2 \times 10^{-4}$	$< 1.1 \times 10^{-4}$
September 24	1040 1055 1227 1241	$> 2.8 \times 10^{-2}$	$< 1.1 \times 10^{-4}$	$< 1.0 \times 10^{-4}$
September 25	0906 0914 1049 1104 1235 1247	2.6×10^{-2}	$< 1.6 \times 10^{-4}$	$< 1.2 \times 10^{-4}$
September 26	0915 0925 1058 1114 1245 1258	2.7×10^{-2}	$< 2.1 \times 10^{-4}$	$< 1.5 \times 10^{-4}$
September 27	0922 0935 1107 1123 1255 1305	2.9×10^{-2}	$< 2.2 \times 10^{-4}$	$< 1.5 \times 10^{-4}$
September 28	0026 0042 0931 0947 1117 1132 1306 1311 2254 2302	3.0×10^{-2}	$< 1.8 \times 10^{-4}$	$< 1.2 \times 10^{-4}$
September 29	0035 0051 0223 0236 0940 0955 1126 1141 2302 2313	$> 3.1 \times 10^{-2}$	$< 1.1 \times 10^{-4}$	$< 1.0 \times 10^{-4}$
September 30	0044 0059 0233 0245 0949 1005 1136 1149 2309 2323	$> 3.0 \times 10^{-2}$	$< 1.1 \times 10^{-4}$	$< 1.0 \times 10^{-4}$
October 1	0054 0109 0244 0254 0814 0825 0958 1014 1147 1157 2318 2332	$> 3.2 \times 10^{-2}$	$< 1.5 \times 10^{-4}$	$< 1.2 \times 10^{-4}$

COMMERCE - STANDARDS - BOULDER

SOLAR RADIATION MONITORING SATELLITE

AVERAGE X-RAY FLUX

NRL

OCTOBER, 1964

Date	Times of Observation	Average X-ray Flux 44-60 A	8-12 A	0-8 A
October 2	0104 0118 0254 0301 0822 0835 1007 1023 1155 1205 2327 2341	2.9×10^{-2}	$< 2.5 \times 10^{-4}$	$< 2.0 \times 10^{-4}$
October 7	0003 0018 0156 0203 0723 0736 0908 0923 1056 1105 2226 2242	3.5×10^{-2}	$\sim 3 \times 10^{-4}$	$< 1.5 \times 10^{-4}$
October 8	0013 0026 0737 0746 0921 0932 2054 2103 2236 2251	$> 3.2 \times 10^{-2}$	$\sim 2 \times 10^{-4}$	$< 1.0 \times 10^{-4}$
October 9	0025 0036 0741 0755 0927 0941 2103 2113 2248 2300	$> 3.1 \times 10^{-2}$	5.5×10^{-4}	$< 1.1 \times 10^{-4}$
October 10	0035 0044 2110 2123 2255 2309	$> 3.6 \times 10^{-2}$	6.0×10^{-4}	$< 1.2 \times 10^{-4}$
October 11	0044 0052 2118 2132 2304 2318	3.4×10^{-2}	$\sim 3 \times 10^{-4}$	$< 1.6 \times 10^{-4}$
October 12	0055 0102 2127 2142 2313 2346	3.3×10^{-2}	$< 2.2 \times 10^{-4}$	$< 1.6 \times 10^{-4}$
October 13	2138 2144 2325 2336	$> 3.0 \times 10^{-2}$	$< 1.8 \times 10^{-4}$	$< 1.3 \times 10^{-4}$
October 14	2001 2012 2145 2200 2334 2345	$> 2.7 \times 10^{-2}$	$< 2.7 \times 10^{-4}$	$< 1.1 \times 10^{-4}$
October 15	2009 2022 2154 2209 2351 2354	2.9×10^{-2}	$< 1.5 \times 10^{-4}$	$< 1.0 \times 10^{-4}$
October 21	2104 2117 2255 2303	2.5×10^{-2}	$< 4 \times 10^{-4}$	$< 3 \times 10^{-4}$
October 22	1747 1752 1927 1941 2117 2127	$> 2.8 \times 10^{-2}$	1.5×10^{-4}	$< 1.1 \times 10^{-4}$
October 23	1754 1803 1936 1951 2124 2136	$> 3.5 \times 10^{-2}$	3.0×10^{-4}	$< 1.2 \times 10^{-4}$
October 28	1654 1703 1836 1851 2025 2035	3.7×10^{-2}	$< 2.5 \times 10^{-4}$	$< 4 \times 10^{-4}$
October 29	1701 1713 1845 1859	$> 2.6 \times 10^{-2}$	2.4×10^{-4}	$< 1.1 \times 10^{-4}$
October 30	1710 1722 1855 1910	3.3×10^{-2}	$< 4 \times 10^{-4}$	$< 3.5 \times 10^{-4}$

COMMERCE - STANDARDS - BOULDER

SOLAR RADIATION MONITORING SATELLITE

AVERAGE X-RAY FLUX

NRL SEPTEMBER-OCTOBER, 1964

Date	Times of Observation	Outstanding Events 44-60 A	8-12 A	0-8 A
September 11	1546 1557	4.37×10^{-2}	$< 7 \times 10^{-4}$	$< 4 \times 10^{-4}$
October 7	2226 2242	$> 3.9 \times 10^{-2}$	6×10^{-4}	$< 1.5 \times 10^{-4}$
8	0013 0026	$> 3.7 \times 10^{-2}$	7×10^{-4}	$< 1.0 \times 10^{-4}$
8	2054 2103	$> 3.1 \times 10^{-2}$	12×10^{-4}	3.7×10^{-4}
	2236 2251	$> 3.0 \times 10^{-2}$	10×10^{-4}	$< 1.0 \times 10^{-4}$
9	0741 0755	$> 3.1 \times 10^{-2}$	10×10^{-4}	4.0×10^{-4}
	0927 0941	$> 3.1 \times 10^{-2}$	14×10^{-4}	6.2×10^{-4}

Note: > indicates saturated signal.
< indicates signal less than noise background.

COMMERCE - STANDARDS - BOULDER

IONOSPHERIC EFFECTS OF SOLAR FLARES

SHORT WAVE RADIO FADEOUTS — SUDDEN PHASE ANOMALIES
SUDDEN COSMIC NOISE ABSORPTION — SUDDEN ENHANCEMENTS OF SIGNAL
SUDDEN ENHANCEMENTS OF ATMOSPHERICS — SUDDEN FREQUENCY DEVIATIONS
SOLAR NOISE BURSTS AT 18 Mc/s

NOVEMBER 1964

NOV 1964	UNIVERSAL TIME			TYPE SWF IMP	IMPORTANCE						BUR	WIDE SPREAD INDEX	STATIONS	KNOWN FLARE
	START	END	MAX		ABS	SCNA	SEA	SPA	SES	SFD				
04	0103	0105									1	5	HA MA	

COMMERCE - STANDARDS - BOULDER

RIOMETER EVENTS

(Provisional)

NOVEMBER 1964

South Pole **26 Mc/s**

NOV. 1964	START UT	END UT	MAX. UT	MAX. ABSORP. db, (tenths)	NO. OF PEAKS	NOV. 1964	START UT	END UT	MAX. UT	MAX. ABSORP. db, (tenths)	NO. OF PEAKS
1	1010	1815	1351	6	2	22	0341	1155	1005	4	2
2	1539	1746	1600	3	3	23	0724	2217	1152	16	2
2	2149	0328	0200	15	2	24	0346	0433	0401	7	2
4	0227	0624	0440	5	2	25	*				
4	1246	1752	1450	13	1	26	0349	0409	0359	5	1
4	2353	0126	0025	8	1	26	0648	2135	1141	9	2
5	1231	1916	1732	8	3	27	*				
6	0838	1749	1425	10	1	28	0216	0312	0237	6	1
7	*					28	0700	1516	1438	5	2
8	0024	0208	0106	8	2	28	1720	1855	1817	3	1
9	**					29	2252	0109	0019	29	1
10	1248	1712	1350	13	1	30	0537	0639	0542	9	1
11	1338	1633	1521	5	2	30	0929	1413	1225	4	3
15–17	2334	0240	2331	16	3	30	2100	2214	2151	3	2
17	1420	1752	1547	7	1						
18	0015	0236	0216	5	1						
19	0135	0235	0203	5	1						
20	0335	0441	0337	8	2						
21	*										

COMMERCE - STANDARDS - BOULDER

* No Event
** No Data

SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

DECEMBER 1964

ARO-DRAO (OTTAWA) 2800;2700 Mc/s

DEC. 1964	URANE	DESCRIPTIVE TYPE	START UT	DURATION HRS. MIN.	MEAN FLUX	MAXIMUM TIME	MAXIMUM FLUX	REMARKS
31	1 4	Simple 1 Post Increase	1723.5	02 28	3 1	1724.7	6 2	

COMMERCE - STANDARDS - BOULDER

HOURS OF OBSERVATION, OCTOBER, NOVEMBER, DECEMBER, 1964

OBSERVING PERIOD:

October	12:20 - 00:15 UT
November	12:40 - 23:15 UT
December	13:20 - 22:50 UT

With the following exceptions:

(1) Observations commenced: Oct. 27 at 13:15 UT
Nov. 10 at 13:15 UT
11 at 13:15 UT
15 at 13:45 UT
Dec. 5 at 13:55 UT
11 at 13:45 UT
12 at 13:45 UT
15 at 13:45 UT
26 at 13:50 UT
28 at 14:30 UT

(2) Daily interruption of observations, approximately 20 minutes in duration, for calibration purposes:

In the period 14:00 - 15:00 UT

(3) Interference or set trouble obscuring records on:

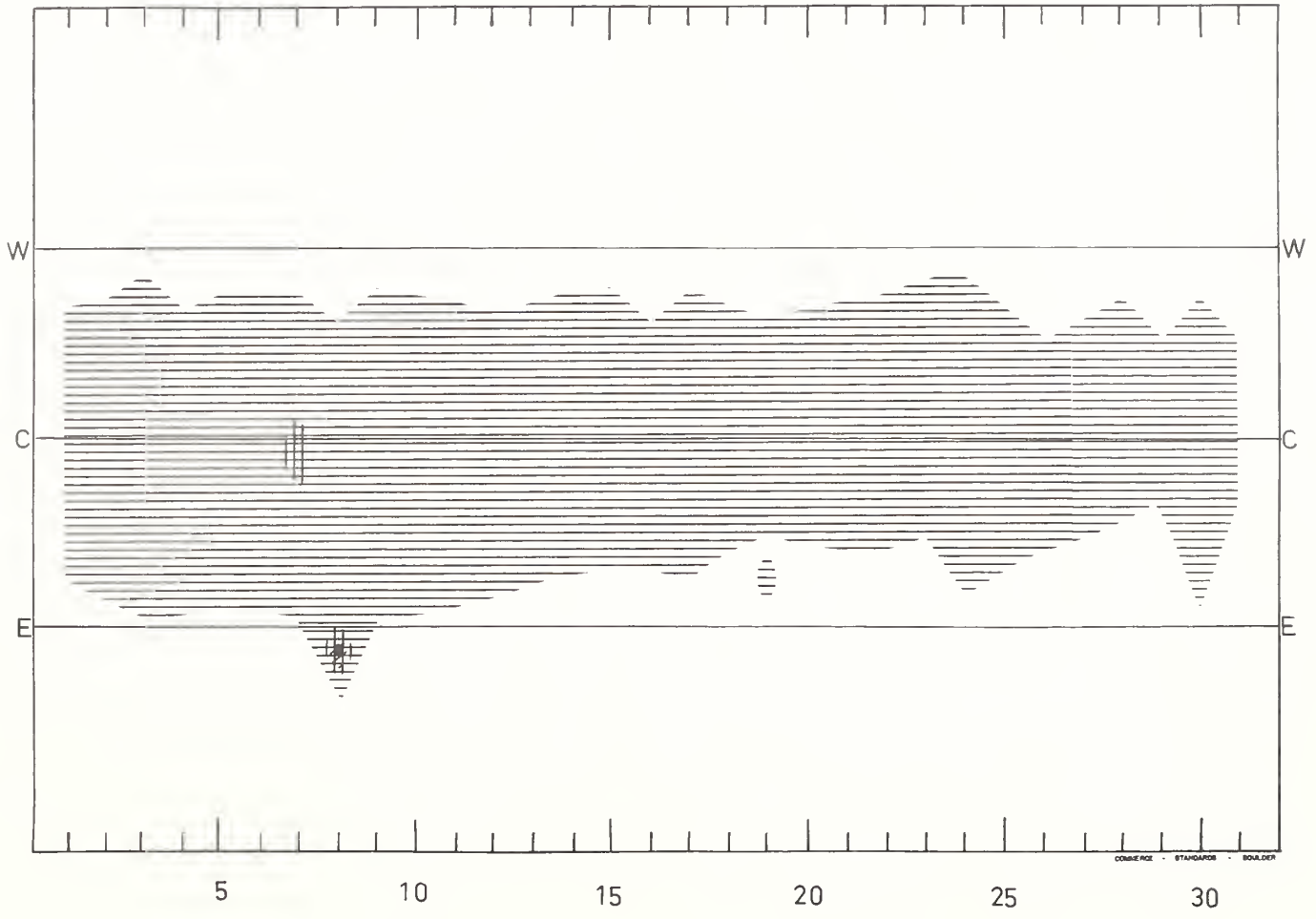
Dec. 16 20:05 to 22:05 UT

SOLAR RADIO EMISSION
INTERFEROMETRIC OBSERVATIONS

DECEMBER 1964

NANÇAY

169 Mc/s



SOLAR RADIO EMISSION
OUTSTANDING OCCURRENCES

DECEMBER 1964

NBS BOULDER 108 Mc/s

Dec. 1964	TYPE	START UT	TIME OF MAXIMUM UT	DURATION MINUTES	INTENSITY
27	7	1510	1545	270	1

NOMINAL TIMES OF OBSERVATION

DECEMBER 1964

NBS BOULDER 108 Mc/s

Dec. 1964	HOURS OF OBSERVATION U.T.	HOURS OF INTERFERENCE U.T.	Dec. 1964	HOURS OF OBSERVATION U.T.	HOURS OF INTERFERENCE U.T.
1	1407-2320		17	1421-2321	
2	1408-2320	2212-2320	18	1422-2322	
3	1409-1610		19	1422-2322	
4	1728-2320	1959-2320	20	1423-2322	
5	1411-2134;	2008-2134			
	2232-2320		21	1645-2000	
			22	1651-2323	2142-2323
6	1412-2320	2128-2249	23	1424-2324	2243-2323
7	1413-2320		24	1425-2324	2230-2324
8	1414-2320		25	1425-2325	1643-1925;
9	1415-2320				2223-2325
10	1416-2320				
			26	1425-2326	2133-2326
11	1417-2320		27	1426-2326	2230-2324
12	1417-2320		28	1426-2327	1540-1612;
13	1418-2320	1418-1629			2259-2327
14	1419-2320		29	1426-2328	
15	1420-2321		30	1427-2329	
16	1550-2321		31	1427-2329	2258-2329

COMMERCE - STANDARDS - BOULDER

Records low weight Dec. 4-15, antenna was stationary during this period. Sun tracking motor was not operating.

SOLAR RADIO EMISSION
SPECTRAL OBSERVATIONS

DECEMBER 1964

High Altitude Observatory
Boulder

7.6-41 Mc/s

Date Dec 1964	Bursts			Frequency Range (Mc/s)	Date Dec 1964	Bursts			Frequency Range (Mc/s)
	Type	Time (U.T.)	Intensity			Type	Time (U.T.)	Intensity	
1 Dec	III	1504:30-1505	1	21-41	22	III	1736:15-1736:30	1	24-37
3	III	1655-1655:30	1	20-41		III	1843-1843:15	1-	25-34
8	no observ.	1840-1858, 2158-2228				no observ.	2200-2330		
					23	III	1813:45-1814	1-	25-41
9	no observ.	1521-1716				III	1820:30-1820:45	1-	25-41
	III	1808:45-1809:15	1	20-41		III	2210:45-2211	1	21-27
	III	2002:30-2003	1	20-41		III	2255:30-2255:45	1	23-27
	no observ.	2314-2330			24	III	1538:15-1538:30	1-	22-26
10	no observ.	1716-1806				III	1538:45-1539	1	25-28
18	III	1537:30-1537:45	1-	22-41		III	1550:15-1550:30	1-	24-41
	III	2032:45-2033	1-	22-41		III	1556-1556:15	1	20-28
	III	2156:15-2156:45	1	21-41		III	1602-1602:15	1	20-25
	III	2214-2214:15	1	21-41		III	1750:30-1750:45	1-	23-29
19	III	2225-2225:15	1	29-36		III	1752:15-1752:30	1-	23-29
20	III	1446-1446:15	1	31-35		III	1812:30-1812:45	1	25-30
	III	1813:30-1813:45	1-	23-41		III	1827-1827:15	1	25-30
	III	1930-1930:15	1-	22-41		III	1827:15-1827:30	1	25-30
	III	1937-1937:15	1	21-41		III	2139:15-2139:30	1+	22-28
	III	1944:45-1945	1-	24-41		III	2151:45-2152	1	16-32
	III	1947:45-1948	1-	26-41		III	2204-2204:15	1	22-35
	III	2032:30-2032:45	1	17-41	25	no observ.	1400-2330		
	III	2054:30-2054:45	1-	25-41	26	III	1523:15-1523:30	1-	24-36
	III	2108:45-2109	1-	27-30		III	1524-1524:15	1-	24-33
	III	2114-2114:15	1	30-35		III	1610:30-1610:45	1	20-24
	III	2120:30-2120:45	1-	26-38		III	1620:30-1621	2	21-41
	III	2122:15-2122:30	1-	22-38		III	1647-1647:15	1	20-27
	continuum	2126:15-2213	1-	23-37		III	2027:15-2027:30	1	21-35
21	no observ.	1400-1530				III	2220:30-2220:45	1-	20-27
	III	1537:45-1538	1-	34-40	29	no observ.	1400-1600		
	III	1538:15-1538:30	1-	29-39		III	1852:15-1852:30	2	20-41
	III	1538:30-1538:45	1-	27-33		III	1927:15-1927:30	1-	25-41
	III	1539-1539:15	1-	23-33		III	1928:15-1928:30	1-	34-41
	III	1558:30-1558:45	1	21-41		III	1928:30-1928:45	1-	25-41
	III	1638-1638:15	1-	33-39	30	III	1519:30-1519:45	1-	25-41
	III	1638:45-1639	1-	32-39		III	1617-1617:15	1-	19-41
	III	1639-1639:15	1-	30-36		III	1958:30-1958:45	1-	20-41
	III	1640:45-1641	1-	24-30	31	III	2028-2028:15	1-	22-36
	III	1655:30-1655:45	1	22-36					
	III	1733:45-1734	1	24-29					
	III	1737-1737:15	1	24-29					
	III	1828-1828:15	1-	25-37					
	III	1831:15-1831:30	1-	22-38					
	III	1833-1833:15	1-	22-35					
22	no observ.	1400-1600							
	III	1651:15-1651:30	1-	23-41					

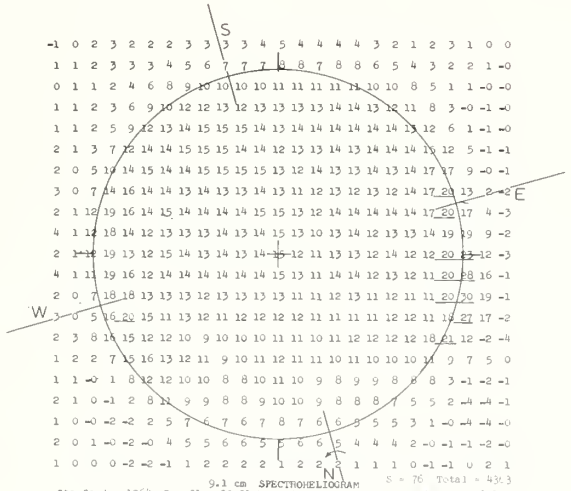
COMMERCE - STANDARDS - BOULDER

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

DECEMBER 1964

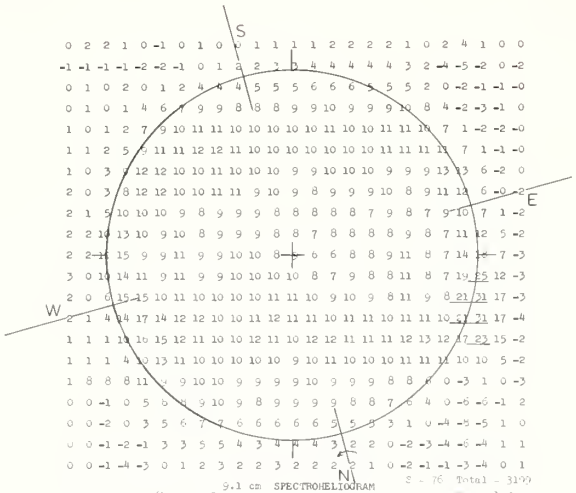
STANFORD

9.1 cm



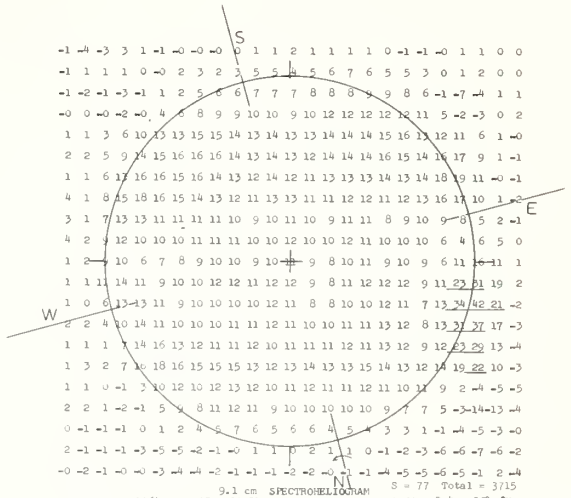
9.1 cm SPECTROHELIOGRAM S = 76 Total = 4313

Stanford, 1964 Dec 01, 20-21 hrs UT; Brightness Unit = 3.0 x 10^3 °K.



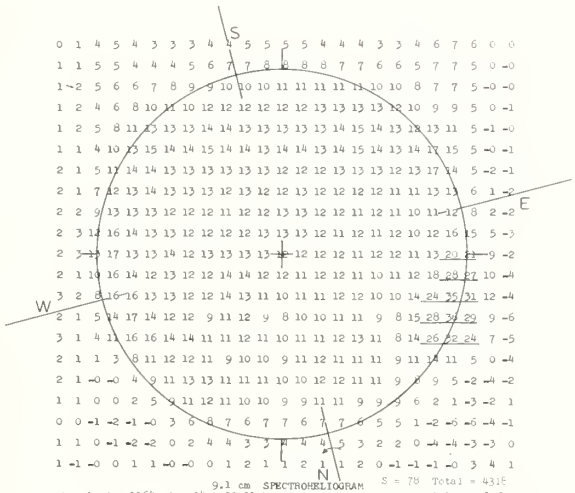
9.1 cm SPECTROHELIOGRAM S = 76 Total = 3199

Stanford, 1964 Dec 02, 20-21 hrs UT; Brightness Unit = 2.8 x 10^3 °K.



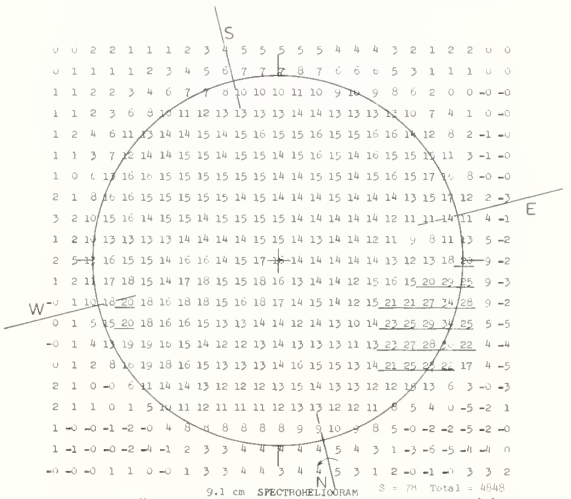
9.1 cm SPECTROHELIOGRAM S = 77 Total = 3715

Stanford, 1964 Dec 03, 20-21 hrs UT; Brightness Unit = 2.4 x 10^3 °K.



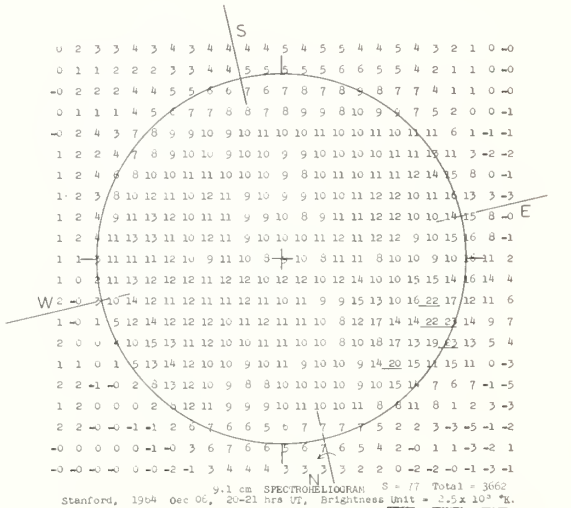
9.1 cm SPECTROHELIOGRAM S = 78 Total = 4316

Stanford, 1964 Dec 04, 20-21 hrs UT; Brightness Unit = 2.1 x 10^3 °K.



9.1 cm SPECTROHELIOGRAM S = 74 Total = 4848

Stanford, 1964 Dec 05, 20-21 hrs UT; Brightness Unit = 1.9 x 10^3 °K.



9.1 cm SPECTROHELIOGRAM S = 77 Total = 3662

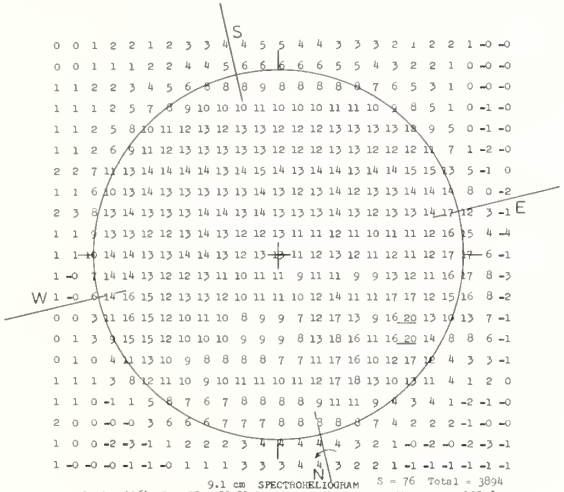
Stanford, 1964 Dec 06, 20-21 hrs UT; Brightness Unit = 2.5 x 10^3 °K.

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

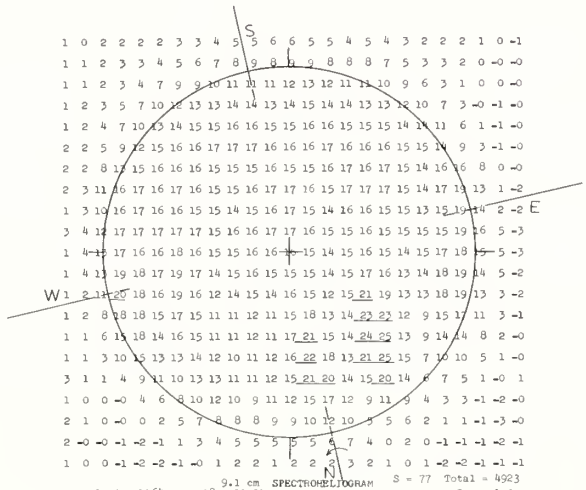
DECEMBER 1964

STANFORD

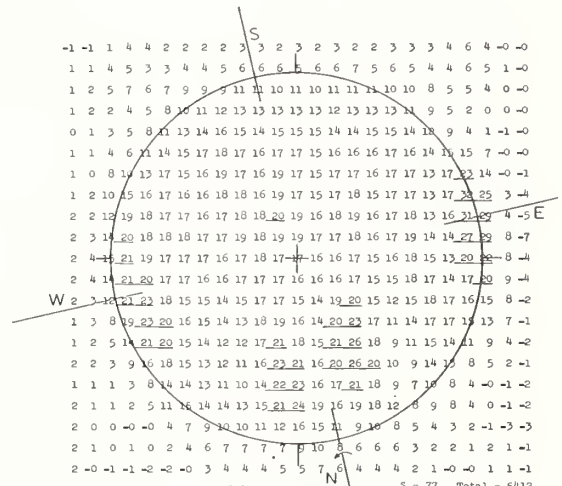
9.1 cm



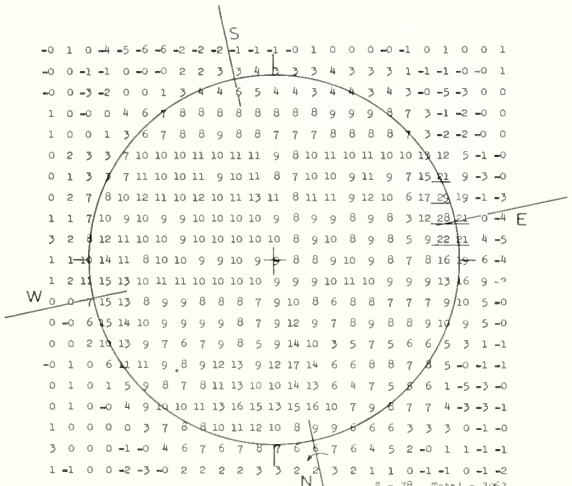
9.1 cm SPECTROHELIOGRAM S = 76 Total = 3894
Stanford, 1964 Dec 07, 20-21 hrs UT; Brightness Unit = 2.3 x 10^3 °K.



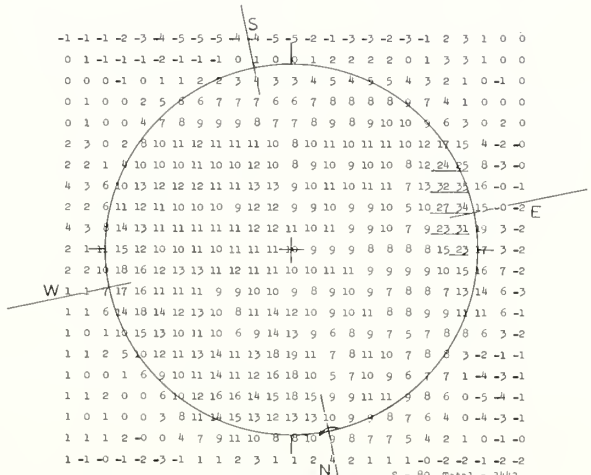
9.1 cm SPECTROHELIOGRAM S = 77 Total = 4923
Stanford, 1964 Dec 08, 20-21 hrs UT; Brightness Unit = 1.8 x 10^3 °K.



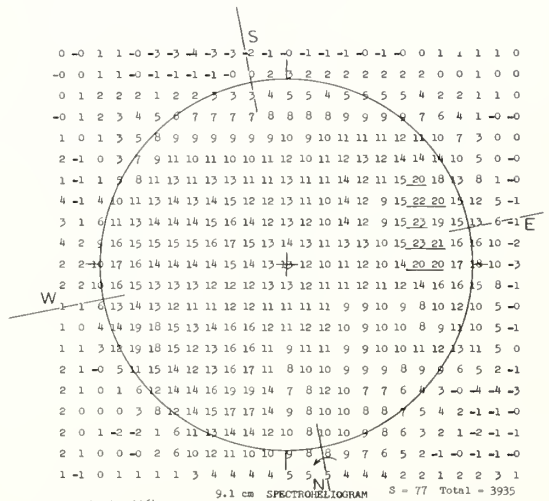
9.1 cm SPECTROHELIOGRAM S = 77 Total = 5412
Stanford, 1964 Dec 09, 20-21 hrs UT; Brightness Unit = 1.7 x 10^3 °K.



9.1 cm SPECTROHELIOGRAM S = 78 Total = 3063
Stanford, 1964 Dec 10, 20-21 hrs UT; Brightness Unit = 3.0 x 10^3 °K.



9.1 cm SPECTROHELIOGRAM S = 80 Total = 3443
Stanford, 1964 Dec 11, 20-21 hrs UT; Brightness Unit = 2.7 x 10^3 °K.



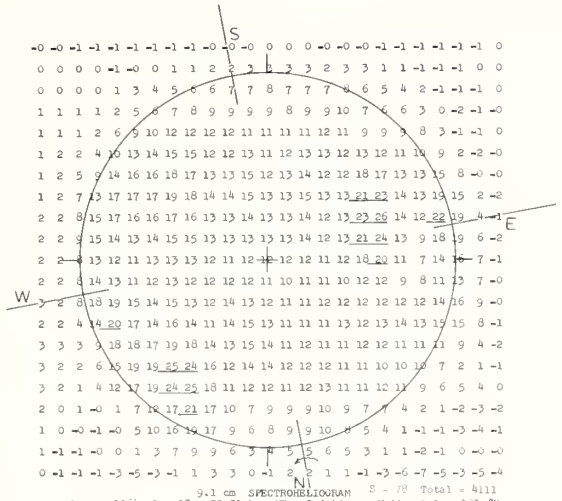
9.1 cm SPECTROHELIOGRAM S = 77 Total = 3935
Stanford, 1964 Dec 12, 20-21 hrs UT; Brightness Unit = 2.3 x 10^3 °K.

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

DECEMBER 1964

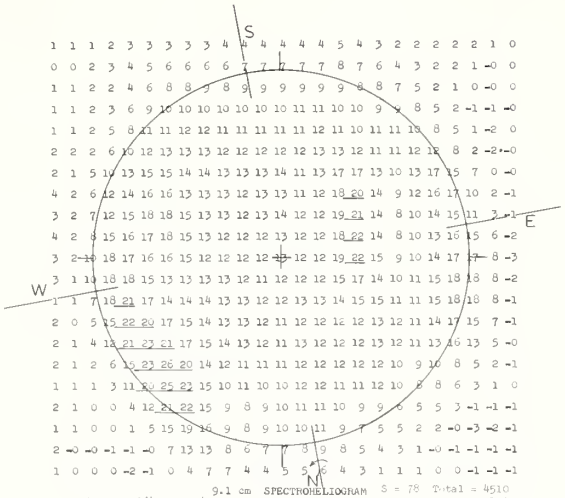
STANFORD

9.1 cm



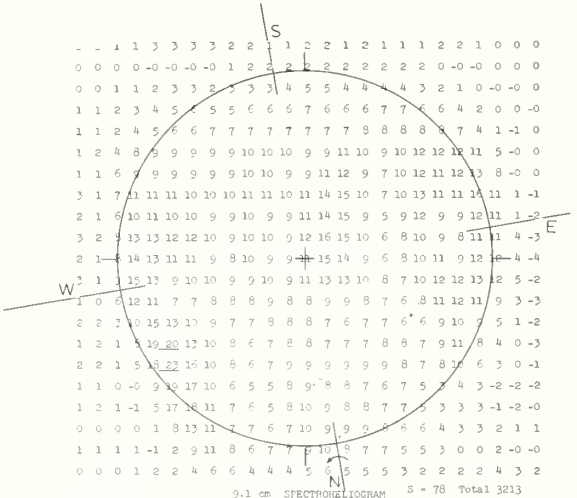
9.1 cm SPECTROHELIOGRAM S = 78 Total = 4111

Stanford, 1964 Dec 13, 20-21 hrs UT; Brightness Unit = 2.2 x 10^3 °K.



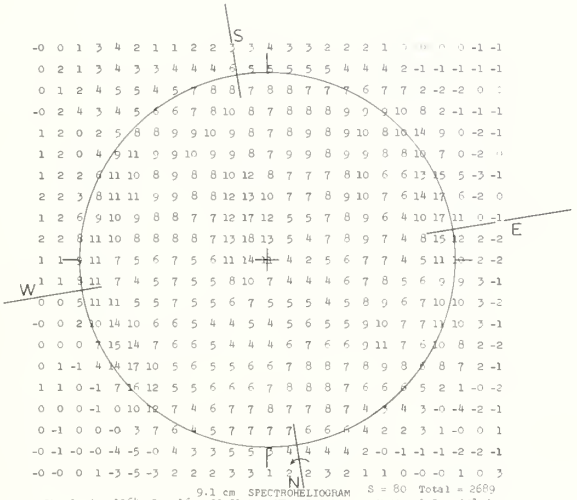
9.1 cm SPECTROHELIOGRAM S = 78 Total = 4510

Stanford, 1964 Dec 14, 20-21 hrs UT; Brightness Unit = 2.0 x 10^3 °K.



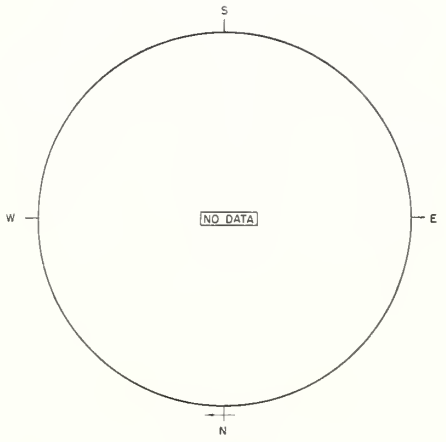
9.1 cm SPECTROHELIOGRAM S = 78 Total 3213

Stanford, 1964 Dec 15, 20-21 hrs UT; Brightness Unit = 2.8 x 10^3 °K.

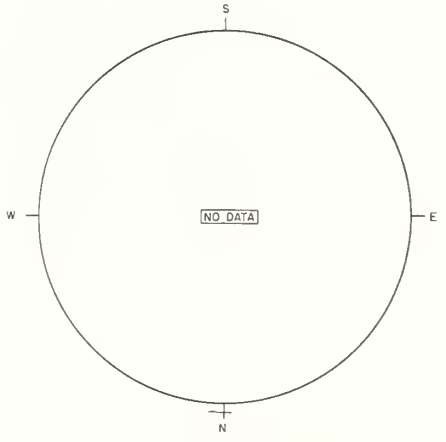


9.1 cm SPECTROHELIOGRAM S = 80 Total = 2689

Stanford, 1964 Dec 16, 20-21 hrs UT; Brightness Unit = 3.5 x 10^3 °K.



1964 DECEMBER 17



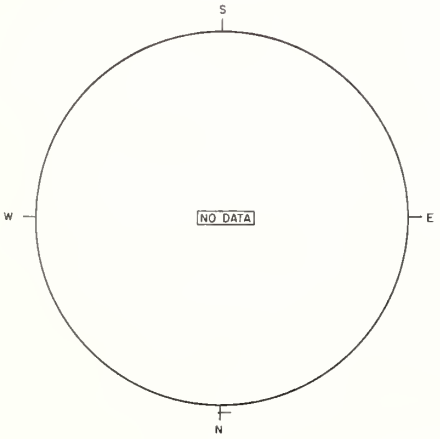
1964 DECEMBER 18

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

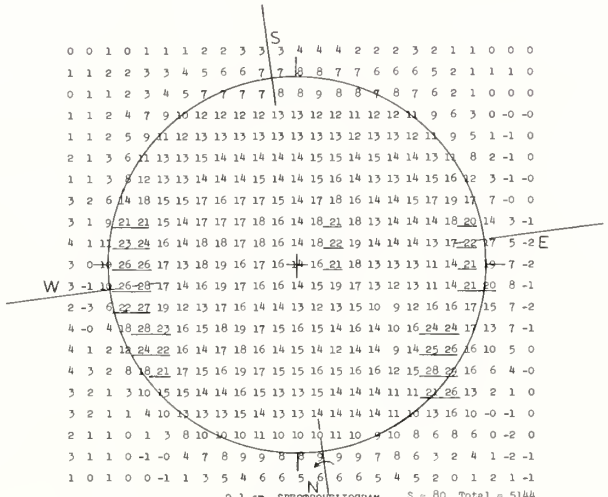
DECEMBER 1964

STANFORD

9.1 cm

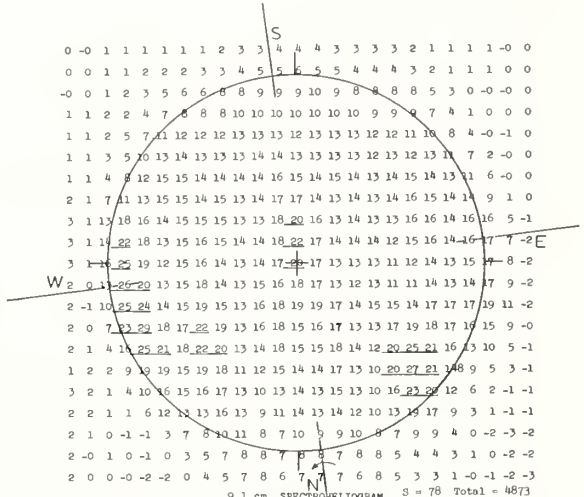


1964 DECEMBER 19



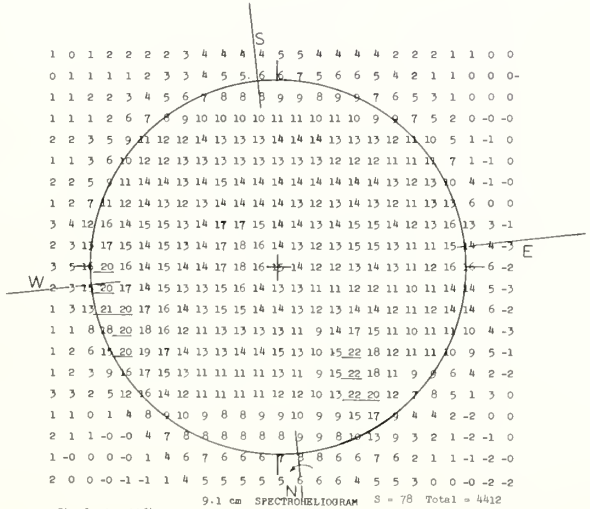
9.1 cm SPECTROHELIOGRAM S = 80 Total = 5144

Stanford, 1964 Dec 20, 20-21 hrs UT; Brightness Unit = 1.8 x 10^3 °K.



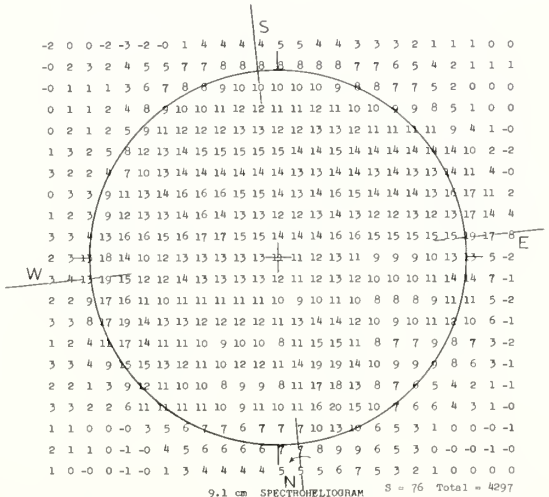
9.1 cm SPECTROHELIOGRAM S = 78 Total = 4873

Stanford, 1964 Dec 21, 20-21 hrs UT; Brightness Unit = 1.9 x 10^3 °K.



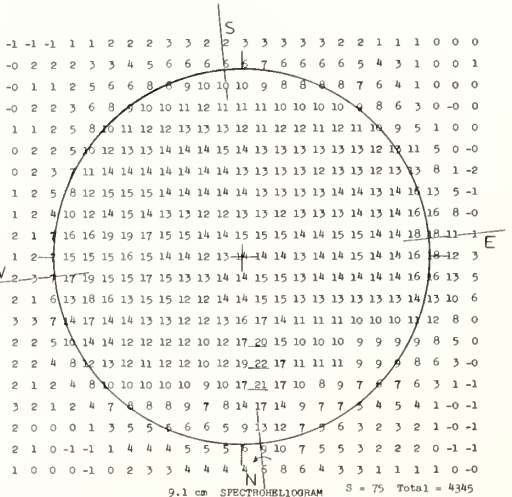
9.1 cm SPECTROHELIOGRAM S = 78 Total = 4412

Stanford, 1964 Dec 22, 20-21 hrs UT; Brightness Unit = 2.1 x 10^3 °K.



9.1 cm SPECTROHELIOGRAM S = 76 Total = 4297

Stanford, 1964 Dec 23, 20-21 hrs UT; Brightness Unit = 2.1 x 10^3 °K.



9.1 cm SPECTROHELIOGRAM S = 75 Total = 4345

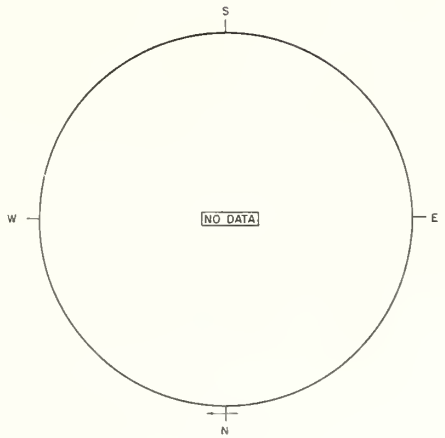
Stanford, 1964 Dec 24, 20-21 hrs UT; Brightness Unit = 2.0 x 10^3 °K.

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

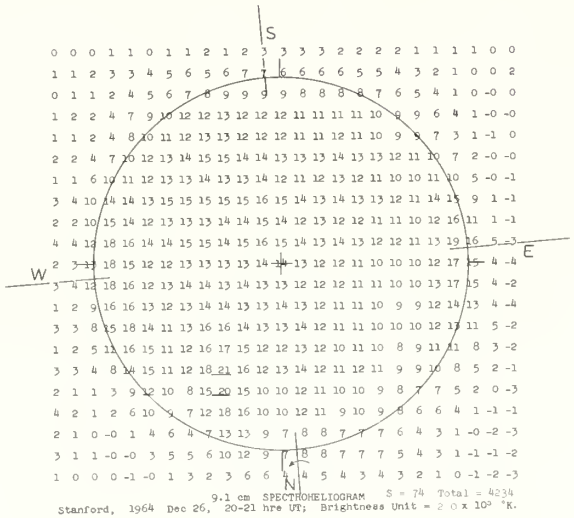
DECEMBER 1964

STANFORD

9.1 cm

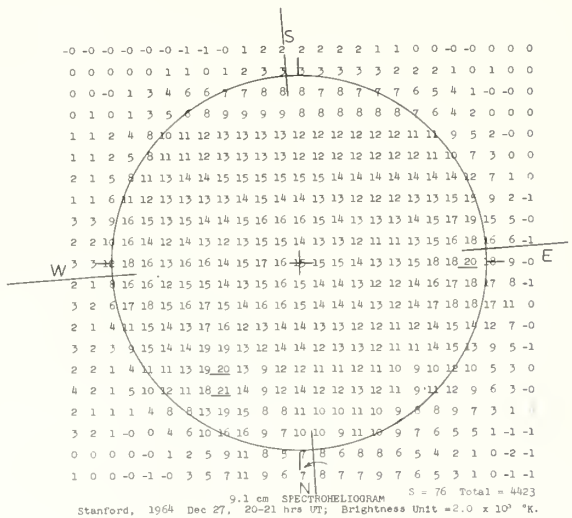


1964 DECEMBER 25



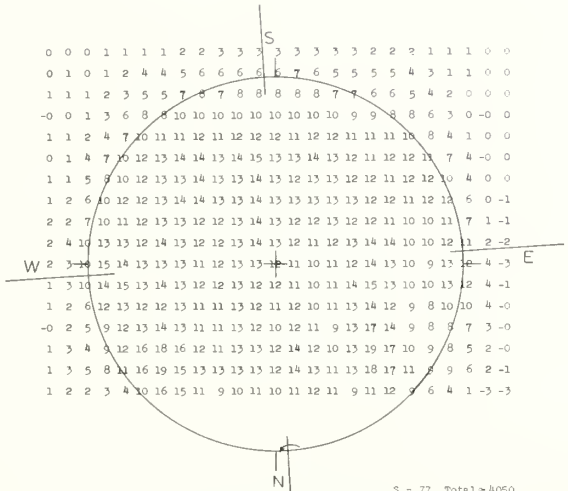
9.1 cm SPECTROHELIOGRAM S = 74 Total = 4234

Stanford, 1964 Dec 26, 20-21 hrs UT; Brightness Unit = 2.0 x 10^3 °K.



9.1 cm SPECTROHELIOGRAM S = 76 Total = 4423

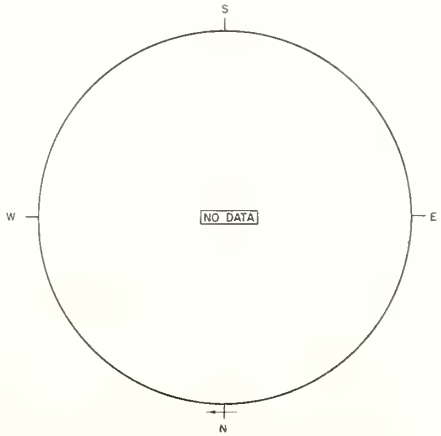
Stanford, 1964 Dec 27, 20-21 hrs UT; Brightness Unit =2.0 x 10^3 °K.



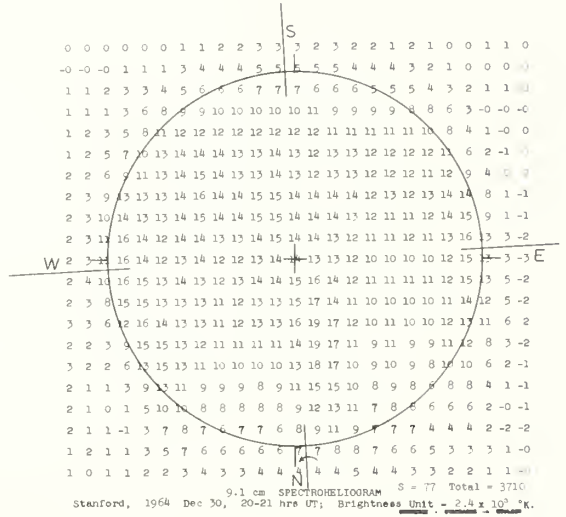
9.1 cm SPECTROHELIOGRAM S = 77 Total ≅4050

Stanford, 1964 Dec 28, 20-21 hrs UT; Brightness Unit ≅ 2.2 x 10^3 °K.

The spectroheliograph for December 28th is missing scans 18 through 21 inclusive. The missing scans were lost due to a power failure that afternoon.



1964 DECEMBER 29



9.1 cm SPECTROHELIOGRAM S = 77 Total = 3710

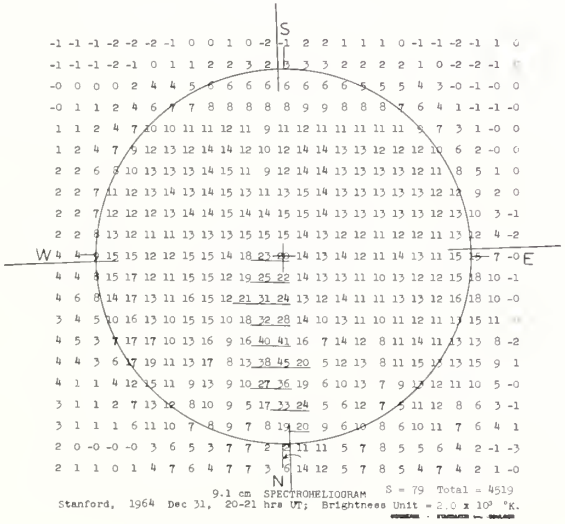
Stanford, 1964 Dec 30, 20-21 hrs UT; Brightness Unit = 2.4 x 10^3 °K.

SOLAR RADIO EMISSION SPECTROHELIOGRAMS

DECEMBER 1964

STANFORD

9.1 cm



9.1 cm SPECTROHELIOGRAM S = 79 Total = 4519

Stanford, 1964 Dec 31, 20-21 hrs UT; Brightness Unit = 2.0 x 10^2 °K.

COSMIC RAY INDICES

(NEUTRON MONITORS)

NOVEMBER 1964

NOV 1964	CHURCHILL	CLIMAX	DALLAS
	Daily Average Counts Per Hour	Daily Average Counts Per Hour	Daily Average Counts Per Hour
1	6488.0	3323.4	6536.2
2	6464.2	3322.0-34	6510.1
3	6477.6	3335.3	6528.4
4	6461.4	3314.3	6510.1
5	6478.0	3326.7	6512.5
6	6492.0	3326.2	6524.6
7	6523.1	3336.3	6533.4
8	6497.3	3326.0	6508.9
9	6468.6	3323.3	6496.6
10	6462.5	3326.0	6494.9
11	6473.4	3337.5	6484.9
12	6464.2	3334.3-32	6517.5
13	6493.6	3360.3	6538.9
14	6496.8	3342.0	6524.5
15	6506.2	3334.5	6521.3
16	6470.7	3330.8	6477.9
17	6481.5	3298.5	6477.5
18	6496.0	3307.4	6473.0
19	6515.1	3321.4	6506.6
20	6522.4	3323.2	6518.9
21	6524.9	3310.8	6532.9
22	6525.4	3327.8	6532.1
23	6494.5	3326.3	6524.9
24	6512.7	3313.3	6508.8-16
25	6514.6	3317.5	6516.5-22
26	6485.4	3311.8-38	6523.0-22
27	6520.7	3337.8	6524.3
28	6499.6	3316.0	6523.0
29	6496.8	3315.9	6535.0
30	6502.0	3304.2	6557.8

COMMERCE - STANDARDS - BOULDER

- (Number) Number of hours for which data are available if less than 24, (or 40 if Climax).

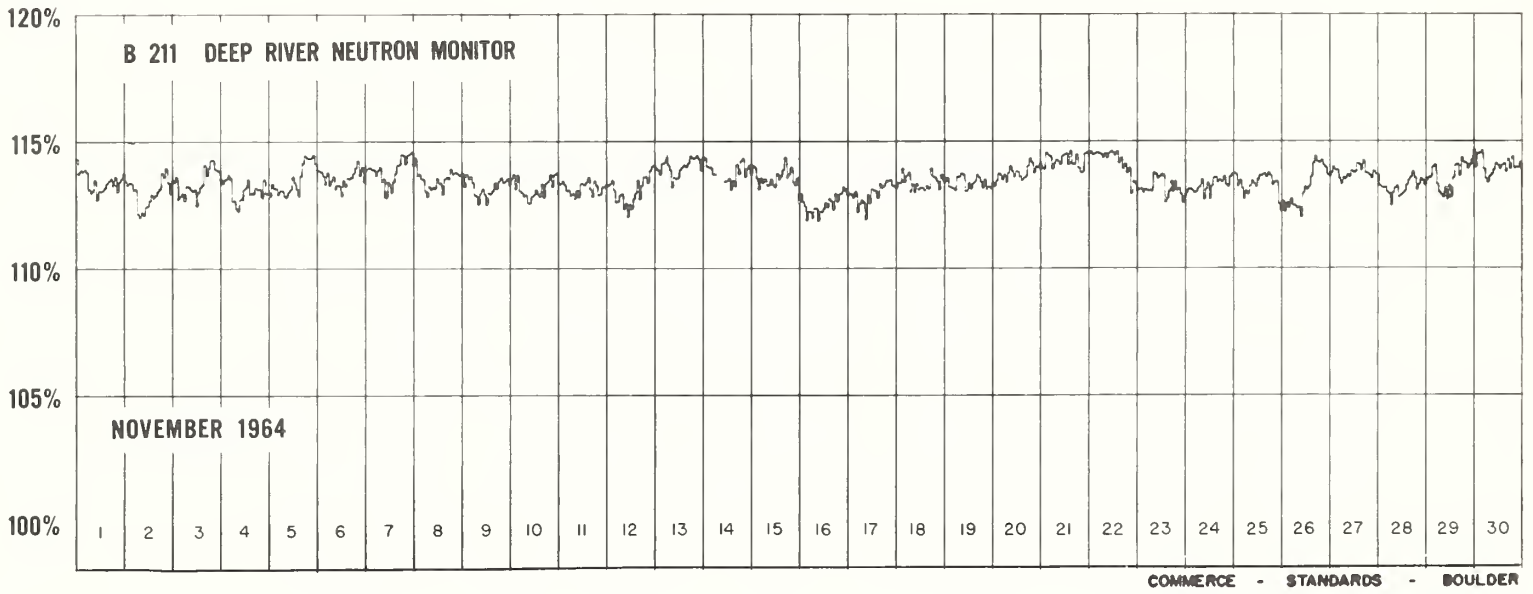
Churchill Super Neutron Monitor, Scaling Factor 120.

Climax IGC Station B305, Scaling Factor 128.

Dallas Super Neutron Monitor, Scaling Factor 120.

COSMIC RAY INDICES

(Pressure Corrected Hourly Totals)

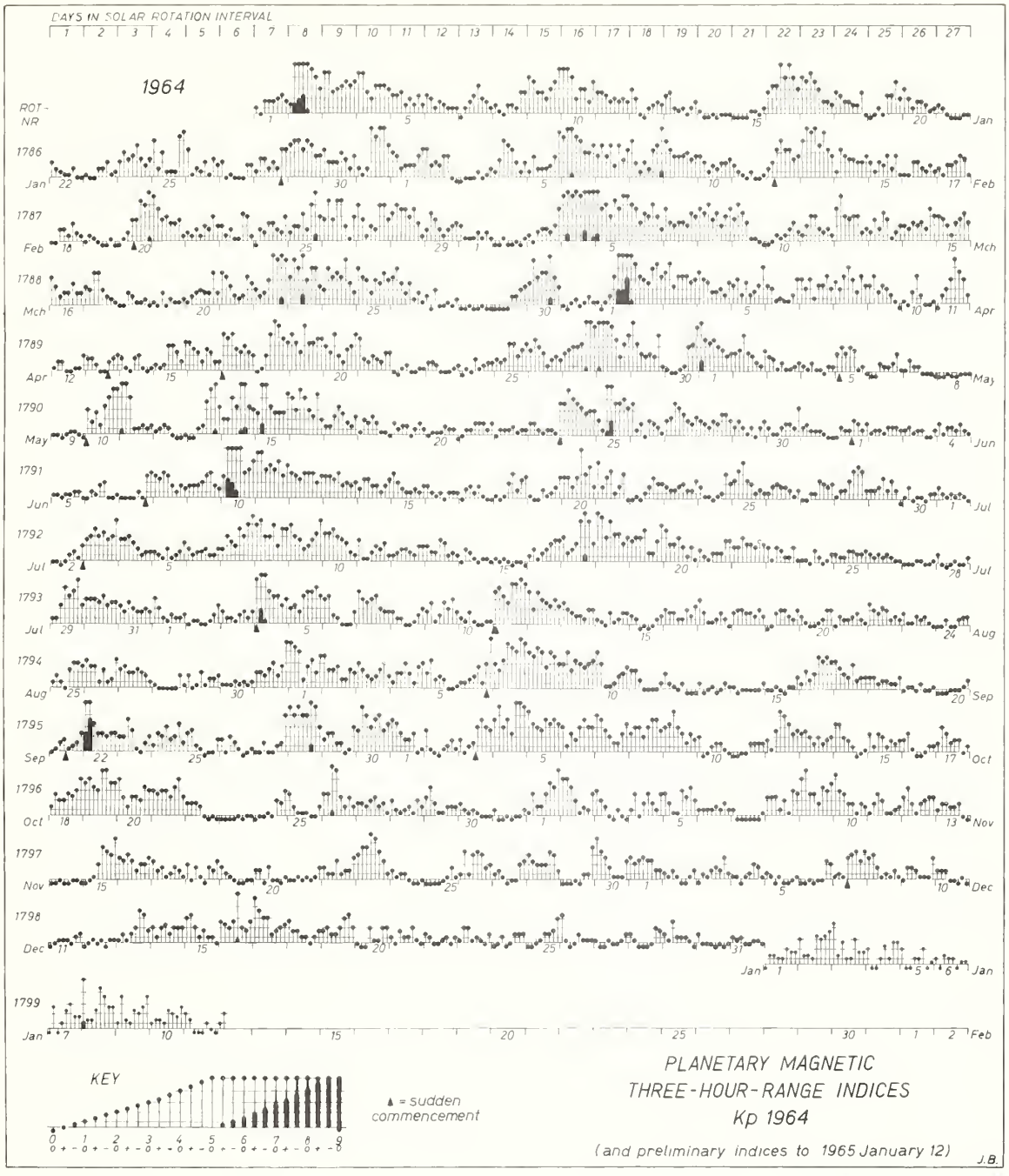


GEOMAGNETIC ACTIVITY INDICES

NOVEMBER 1964

NOV. 1964	C	Values Kp — Three hour Gr. interval 1 2 3 4	5 6 7 8	Sum	Ap	Final Selected Days
1	1.0	1- 3- 1+ 1+	3- 4- 3+ 5-	20+	14	Five
2	0.7	4o 4o 3+ 2o	1- 1+ 1o 3-	19o	13	Quiet
3	0.2	3o 2o 1+ 0+	0o 1o 0+ 0o	8o	4	
4	0.3	1o 3- 0+ 2-	3- 2- 1o 3-	14-	7	7
5	0.6	3- 2- 1- 1-	3o 2+ 3+ 2o	16+	9	14
						19
6	0.2	1o 1o 1o 1o	1+ 1o 2- 1o	9o	4	24
7	0.0	1o 0o 0o 0o	0o 0o 0o 1-	2-	1	25
8	0.6	2+ 2+ 2+ 1o	2o 1- 3o 3-	16+	8	
9	1.0	4o 5- 3- 3-	2- 3+ 3o 4-	26-	19	
10	0.5	4+ 3o 3- 2-	2- 1- 2- 1+	17o	11	
11	0.1	1- 2- 3- 2o	1- 1- 1o 1+	11-	5	Five
12	0.4	2+ 3+ 2- 1-	2- 2o 2+ 2+	16+	8	Disturbed
13	0.1	1o 2- 2- 1+	1+ 2- 0+ 0o	9o	4	
14	0.0	0o 0o 0+ 0o	0o 0+ 0+ 0o	1o	1	1
15	1.0	0o 0+ 1- 2o	4- 3+ 3o 4+	17+	12	2
						9
16	0.6	3- 2+ 3o 2+	1+ 2o 2o 3-	18+	10	15
17	0.2	2+ 1+ 2- 1-	1o 2- 1+ 1-	11-	5	23
18	0.3	2o 0+ 2- 1-	0o 2- 1+ 2+	10o	5	
19	0.0	2- 1o 1- 0+	0o 0o 0+ 0+	4+	2	
20	0.0	1+ 1+ 0o 2-	0+ 0+ 0o 1-	6-	3	
21	0.0	0+ 0+ 1- 0+	1- 0+ 1- 2-	5o	3	Ten
22	0.4	2- 1o 1o 2+	1o 1+ 1+ 3-	12+	6	Quiet
23	1.1	3o 4- 4- 5-	4+ 3+ 2+ 1o	26o	20	
24	0.0	1+ 1- 1o 1o	0+ 0o 0o 0+	5-	2	6
25	0.0	0o 0o 0o 0o	0+ 1- 2- 1-	3+	2	7
						13
26	0.8	1o 3+ 1o 3o	3+ 3o 2- 2o	18+	11	14
27	0.3	1o 1+ 1- 0o	0+ 0+ 2o 2+	8o	4	19
28	0.7	3o 2+ 2o 2o	2o 3+ 3o 1+	19o	10	20
29	0.3	0o 0o 0o 0+	0o 1o 1o 4-	6o	4	21
30	0.7	4+ 3+ 3- 2-	1- 1- 1- 2+	16+	11	24
						25
						27
Mean:	0.40			Mean:	7	

COMMERCE - STANDARDS - BOULDER



COMMERCE - STANDARDS - BOULDER

R	Rot.-Nr.	1st day	C9
66 55 32 22	19	J 23	5 5 35 44 36 4 2 43 2
47 76 43 12		F 19	2 43 2 44 22 2 46 2 33 42 2 2 43 4
46 53 32 23	62	M 18	2 43 4 2 67 66 52 22 23 2
65 54 33 43 3	1762	A 14	22 23 2 35 6 3 3 22 2 2 52 2 3 44 2
32 24 54 43 2	63	M 11	2 3 44 2 3 5 2 32 3 2 54 12
33 35 43 33 3	64	J 7	2 54 12 23 3 34 12 5 44 22 2 54 3 23 1
22 22 2 11	65	J 4	54 3 23 22 32 34 3 22 4 47 6 52 1 36 3 12
1 1 1 24 33 2	66	J 31	36 3 12 55 6 53 2 55 54 1 64 54 2 4 46 6
35 54 4 22	67	A 27	4 4 66 67 6 45 4 43 3 2 75 34 2 2 64 35 4 6 22
44 4 22 3 55 3	68	S 23	4 6 22 54 7 53 3 34 3 66 5 6 23 6 35 2 46 34 5 56 6
33 3 22 1 22 4	69	0 20	34 5 56 6 66 5 34 2 24 4 5 5 4 2 1 3 6 6 2 5
53 1 2 3 43 1	1770	N 16	6 2 5 65 4 5 1 2 2 2 6 2 4 2 1 1 6 3 43 3 67
2 13 2 1 1 23 1	71	0 13	43 3 67 76 5 3 1 4 1 1 1 3 1 2 1 1 66
1 23 2 1 1 223	19	J 9	1 1 66 66 5 45 1 1 2 32 1 67 4 2 7
43 1 222 2 1 1	63	F 5	2 7 55 6 52 1 2 1 1 1 1 1 4 1 2 1 2 65
232 2 1 1 2 1 1		M 4	1 2 65 75 3 2 1 1 2 1 1 3 1 1 1 3 1 56
224 444 2 1 1	1775	M 31	3 1 56 54 2 2 2 34 4 1 1 43 2 3 2 1 2 1 566
1 22 444 55 3	76	A 27	2 1 566 45 2 2 1 3 445 2 53 1 1 1 2 1 1 2 1 245
223 225 64 2	77	M 24	2 1 2 45 3 23 3 1 1 47 32 1 1 1 1 2 2 53 32 1 1 5
1 22 22 1 1 1 2	78	J 20	32 1 1 5 64 3 23 1 4 55 3 34 3 1 1 1 2 42 1 1 63
1 22 2 44 42 1	79	J 17	42 1 6 3 56 3 44 1 65 44 2 33 3 2 1 2 2 1 2 1 26
1 23 42 2 232	1780	A 13	2 1 2 66 76 2 52 2 24 6 43 44 2 2 1 2 1 4 42 54 27
2 36 55 2 1 1 1	81	S 9	42 54 2 7 667 464 787 576 675 3 1 2 1 34 1 25
233 433 434	82	0 6	1 34 1 25 666 44 1 1 4 2 7 42 1 76 1 2 44 1 36
32 1 1 2 232	83	N 2	44 1 36 766 44 1 1 4 1 254 1 25 1 366
222 22 1 1 1 1	84	N 29	25 1 366 654 42 1 2 32 1 1 533 42 1 1 34 1
1 1 1 21 2 1 1	1785	026	1 34 1 1 75 52 1 1 1 55 21 1 1 642 1 1 1 3 41 1
1 12 1 1 1 12	19	J 22	1 34 1 2 53 632 33 645 42 1 46 2 232 1 36 454
1 33 2 1 1 1 3	64	F 18	36 454 2 1 46 22 2 764 352 1 24 233 23 1 23
2 13 2 1 1 1 1		M 16	1 3 23 665 43 1 6 76 533 1 34 2 1 4 1 1 224
1 1 1 2 1 1 1 1	1789	A 12	1 1 224 554 2 1 1 33 664 353 2 1 1 55 56
1 12 1 1 1 1 1 1	1790	M 9	55 56 65 2 1 1 1 1 56 1 32 1 1 1 1 1 1 227
1 12 22 1 1 1	91	J 5	1 22 76 32 1 1 2 1 43 1 1 3 1 1 3 1 1 1 52 1 1 5
1 1 1 1 1 1 1	92	J 2	52 1 1 5 543 1 1 1 2 564 2 1 2 1 1 1 442 1 1
1 1 1 1 2 2 1	93	J 29	442 1 1 64 1 3 2 64 1 1 1 1 1 1 232 1 1
1 1 1 1 1	94	A 25	232 1 352 22 1 365 42 1 42 1 1 72 2 1
1 2 1 1	95	S 21	72 2 1 1 6 1 52 365 344 4 422 1 1 363 4
1 1 1 1 1 1 1 1	96	0 18	363 4 1 1 5 1 1 1 4 3 1 2 2 1 2 53 1 2 1 32 1 1
1 1 1 1 1 1 1	97	N 14	32 1 1 1 5 3 3 32 1 3 1 1 1 2 1 24
1 1 2 222 2	1798	011	2 1 24 4 1 2 1 1 1 1 1 33 1 1 1 53 2
		J 7	preliminary
		F 3	

Symbol		1	2	3	4	5	6	7	8	9
R =	0	1 15	16 30	31 45	46 60	61 80	81 100	101 130	131 170	171
C9 =	0	1	2	3	4	5	6	7	8	9
Cp =	0.0 0.1	0.2 0.3	0.4 0.5	0.6 0.7	0.8 0.9	1.0 1.1	1.2 1.4	1.5 1.8	1.9	2.0 2.5
Ap =	0 4	5 7	8 10	11 13	14 17	18 24	25 40	41 91	92 140	141 400

DAILY GEOMAGNETIC CHARACTER FIGURES C9 AND SUNSPOT NUMBERS R

For explanation and previous years see J. Bartels: „Abhandlungen der Akademie der Wissenschaften, Göttingen, Beiträge zum I.G.J., Heft 3 (1958)" (may be requested from Geophysikalisches Institut, Herzberger Landstrasse 180, 34 Göttingen (Germany)

CRPL RADIO PROPAGATION QUALITY FIGURES AND FORECASTS

NORTH ATLANTIC, NORTH PACIFIC — NOVEMBER 1964

NOV 1964	WHOLE DAY INDICES			ADVANCE FORECASTS (Jc-REPORTS) FOR WHOLE DAY	NORTH ATLANTIC								NORTH PACIFIC			GEOMAGNETIC INDICES						
					6-HOURLY QUALITY FIGURES				SHORT-TERM FORECASTS ISSUED ABOUT ONE HOUR IN ADVANCE OF:				8-HOURLY QUALITY FIGURES			K_{FR}		A_{FR}		K_{SI}		A_{SI}
	NORTH ATLANTIC	NORTH PACIFIC	AVERAGE HIGH LATITUDE		00 TO 06	06 TO 12	12 TO 18	18 TO 24	00	06	12	18	03 TO 11	11 TO 19	19 TO 03	HALF (1)	DAY (2)	OBSERVED	PREDICTED	HALF (1)	DAY (2)	
1	6+	6	6	5	6o	6+	7-	6o	5	5	7	6	5	5	6	1	3	12	17	1	3	9
2	6+	6	6	5	6+	6o	7-	6+	5	5	7	6	5	5	6	3	1	10	15	3	1	7
3	6o	6	6	5	5+	6o	7-	6+	6	5	7	6	6	5	6	2	0	4	11	1	0	2
4	6o	6	6	6	5o	6o	7-	6+	6	5	7	6	6	5	6	2	2	6	7	0	2	3
5	6+	6	6	6	6o	6+	7-	6+	5	6	7	6	5	5	7	1	2	6	4	1	2	5
6	6+	7	7	6	6-	6o	7-	6+	6	6	7	6	6	5	7	1	1	4	4	0	1	3
7	6o	5	6	6	6-	5+	7-	6+	6	6	7	7	5	5	7	0	0	0	3	0	0	0
8	6o	6	6	6	5+	6o	7-	6+	6	5	7	6	6	5	7	2	2	7	7	1	2	6
9	6o	6	6	6	6-	6-	7-	6o	6	5	6	6	5	6	6	(4)	3	18	7	4	2	16
10	6o	6	6	6	5+	6o	7-	6+	6	5	7	6	5	5	7	3	1	8	7	2	1	5
11	6o	6	6	6	5o	6o	7-	7-	5	6	7	6	5	5	7	2	1	5	6	2	1	6
12	6o	6	6	6	5+	6o	7-	6o	6	6	7	7	6	5	7	2	2	8	5	2	1	6
13	6o	6	6	6	6-	6-	7-	6+	5	6	7	7	6	6	6	2	0	4	6	2	1	5
14	6+	6	6	6	6o	6-	7-	7-	6	6	7	7	6	5	6	0	0	0	9	0	0	1
15	6+	5	6	6	6-	6-	7o	7-	6	5	7	6	5	5	7	1	3	11	13	1	3	9
16	6+	6	6	6	6-	6o	7-	7-	6	6	7	6	5	5	6	2	1	7	9	2	2	8
17	6o	6	6	6	5+	6-	7-	6+	6	6	7	7	6	5	7	1	1	3	8	1	1	3
18	6o	6	6	6	6o	5+	7-	6o	6	6	7	6	5	5	7	1	1	3	7	1	1	7
19	6o	6	6	6	6-	6o	7-	6o	6	6	7	6	5	5	7	1	0	1	3	0	0	1
20	6o	6	6	6	5o	6-	7-	7-	6	6	7	6	5	5	6	1	0	2	3	1	0	2
21	6o	5	6	6	5+	5+	7-	7-	6	6	7	6	5	5	6	1	1	2	7	0	0	2
22	6o	5	6	6	6-	6-	6+	7-	5	6	6	6	5	5	6	1	1	4	11	2	1	4
23	6-	5	6	6	6o	5+	6o	6o	6	6	6	6	5	5	6	3	2	15	7	3	3	22
24	6o	5	6	6	6+	5+	7-	6-	5	5	6	6	5	5	6	1	0	2	5	1	0	3
25	6-	5	6	6	5+	4o	7-	6o	6	6	7	6	5	5	6	0	1	2	5	0	0	0
26	6-	5	6	6	5+	5o	7-	6+	6	5	7	6	5	5	5	2	2	8	3	2	2	11
27	6-	5	6	6	6-	5o	7-	6+	6	5	7	7	5	5	6	1	1	3	5	0	1	2
28	5+	5	5	5	4+	4+	7-	6+	6	5	7	6	5	5	5	2	2	7	11	2	2	8
29	6-	5	6	5	5-	5o	7-	6+	6	5	7	7	5	5	6	0	1	3	11	0	1	2
30	6-	5	6	6	5o	6-	7-	6+	6	5	7	6	5	5	6	2	1	7	7	1	0	4

SCORE						
QUIET PERIODS:	P	25	11	15	28	18
	S	5	18	13	2	12
	U	0	0	0	0	0
	F	0	0	0	0	0
DISTURBED PERIODS:	P	0	0	0	0	0
	S	0	0	1	0	0
	U	0	0	0	0	0
	F	0	1	1	0	0

COMMERCE - STANDARDS - BOULDER

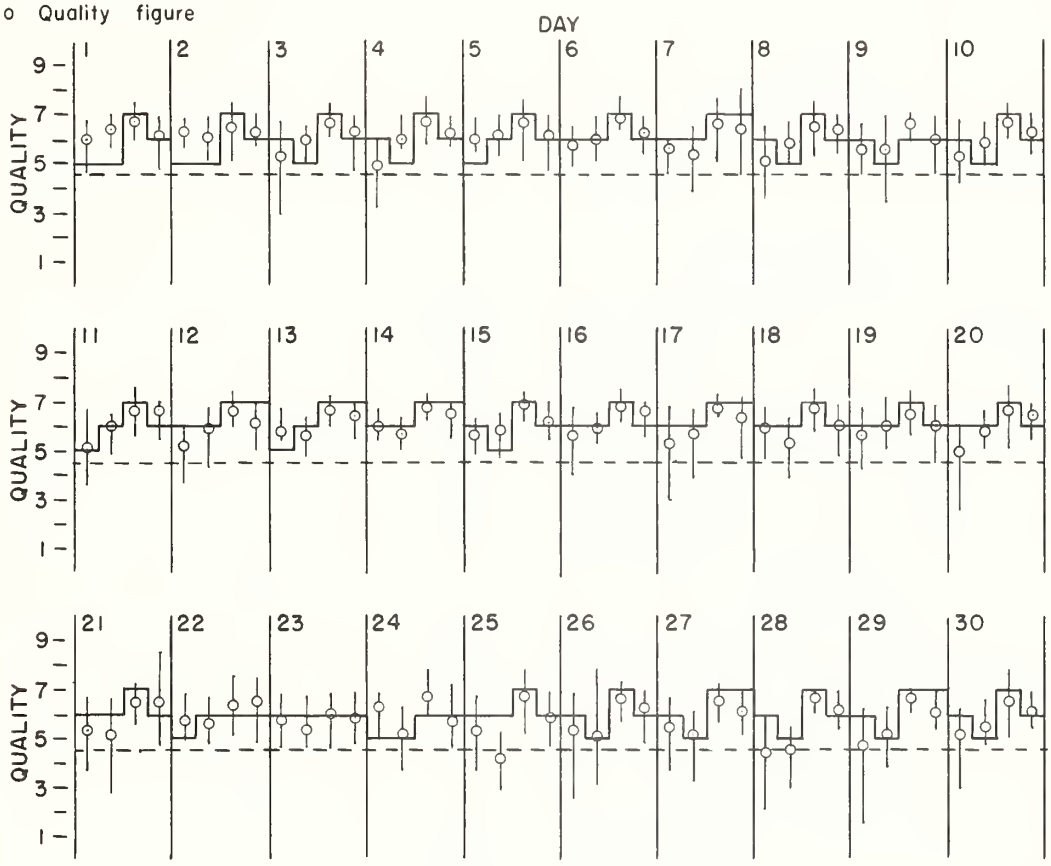
NOTES:

1. The advance Jc forecasts are scored against the average high latitude whole day indices.
2. The observed indices for the North Pacific are low weight because of insufficient data available for their preparation.
3. As of November 1, 1964, short-term and advance forecasts for the North Pacific area are no longer prepared.
4. The predicted A_{Fr} indices are issued each Wednesday for the coming seven days. The values for the first day of each prediction period is underlined.

NORTH ATLANTIC

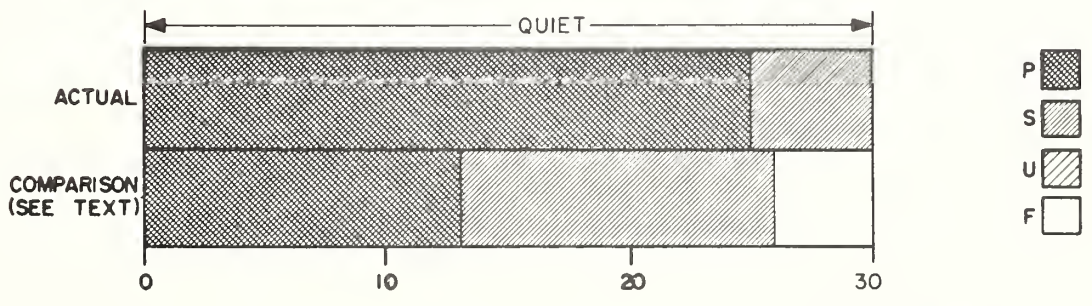
NOVEMBER 1964

— Short - term forecast
o Quality figure
I Range of reports



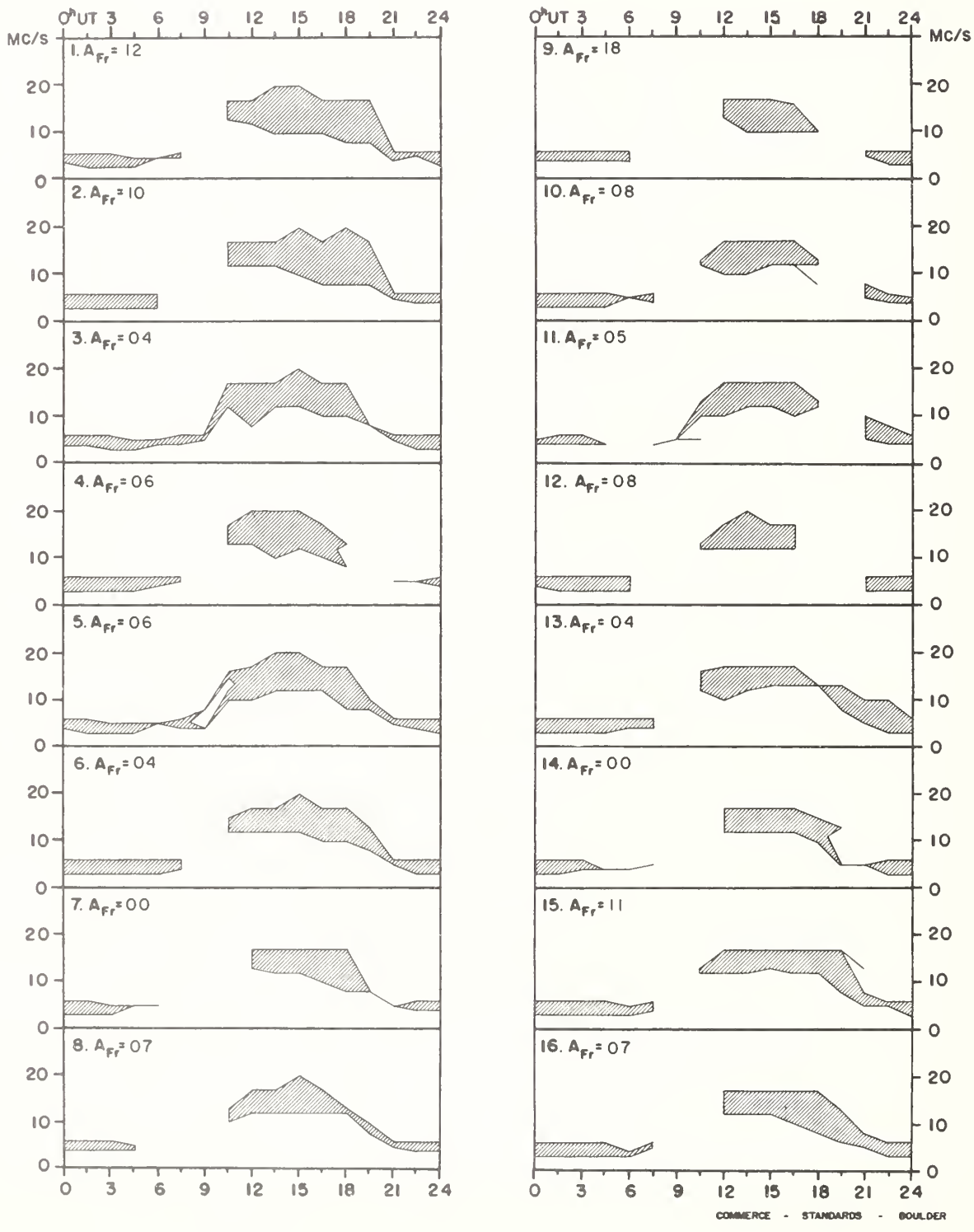
OUTCOME OF ADVANCE FORCASTS--FINAL ESTIMATES (1 TO 7 DAYS AHEAD)

HIGH LATITUDE



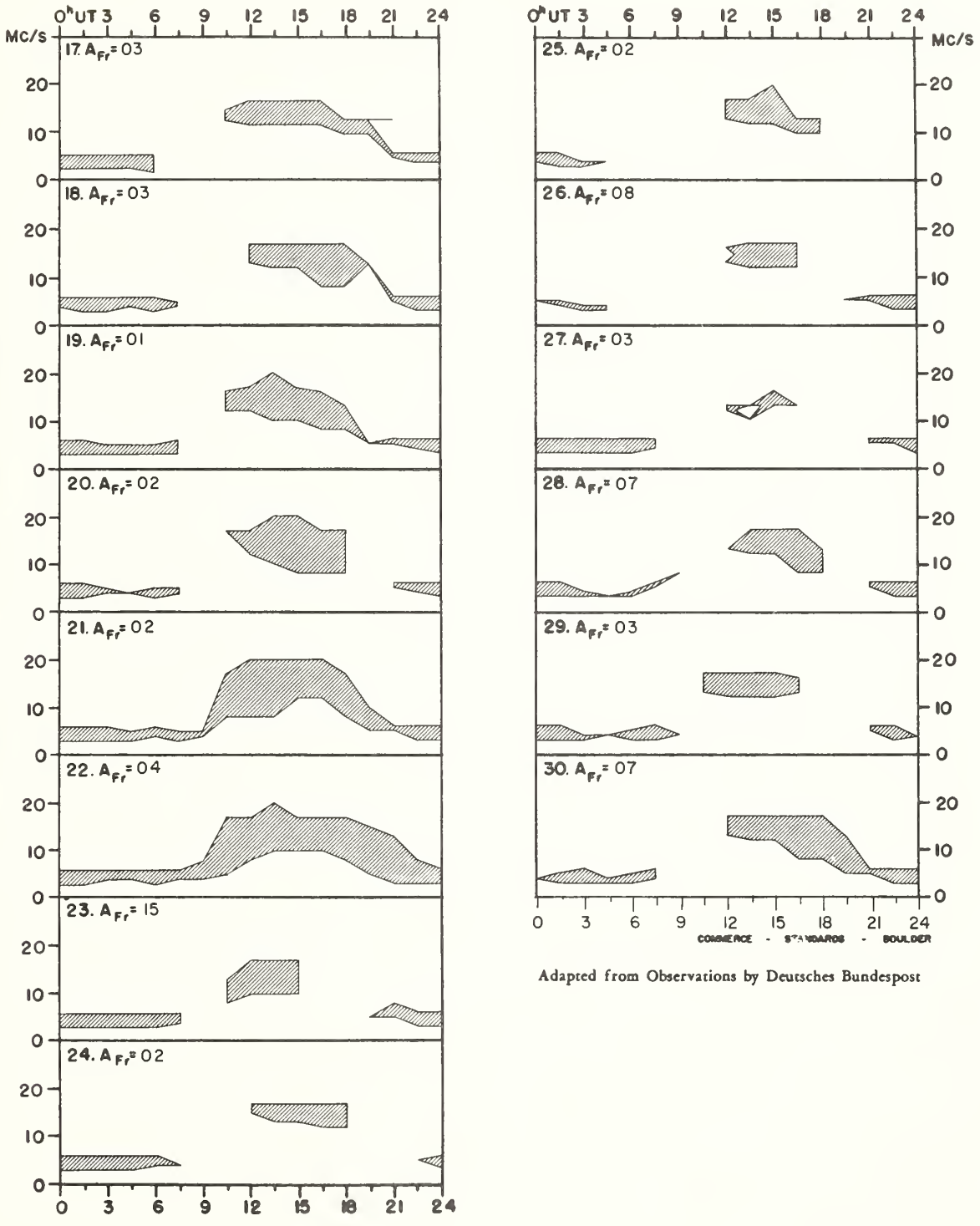
USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

NOVEMBER 1964



USEFUL FREQUENCY RANGES -- NORTH ATLANTIC PATH

NOVEMBER 1964



Adapted from Observations by Deutsches Bundespost

IQSY ALERT PERIODS

INTERNATIONAL URSIGRAM AND WORLD DAYS SERVICE

DECEMBER 1964

DEC. 1964	TIME OF ISSUE UT	ADVANCE GEOPHYSICAL ALERT	WORLDWIDE GEOPHYSICAL ALERT			
			NO.	TYPE	TIMING	ELABORATION
2	0400		143	Solar Activity	Exists	East Limb
3	0400		144	Solar Activity	Exists	East Limb
4	0400		145	Solar Activity	Exists	East Limb
5	0400		146	Solar Activity	Exists	
18	2000	Ft. Belvoir, Solar Activity Exists Eastern Hemisphere				
19	0400		147	Solar Activity	Exists	
20	0400		148	Solar Activity	Exists	
21	0400		149	Solar Activity	Exists	
22	0400		150	Solar Activity	Exists	
28	0400		151	Magnetic Calm	Exists	
28	2005	Ft. Belvoir, Solar Activity Exists Sunspot Born				
29	0400		152	Magnetic Calm Solar Activity	Exists Exists	
30	0400		153	Solar Activity	Exists	
31	1840	McMath, Solar Flare 31/1727Z				

COMMERCE - STANDARDS - BOULDER

Note: 1964 March 27 through April 3 has been designated as a joint IONOMAGSTORM and QUIETSUN Retrospective World Interval.
This information was sent with the December 2 Geophysical Alert.